

AMERICAN AGRICULTURIST YEAR BOOK AND ALMANAC



A Cyclopedic of Events



A MARKET GUIDE
A COMPLETE ALMANAC
A TREASURY OF
STATISTICS
A REFERENCE WORK

on every subject of timely interest per-
taining to Agriculture, Industry, Com-
merce, Public Affairs, Household,
Education, Religion and Progress.



The Great Movements and
Issues of 1898

Copiously Illustrated

WHAT THE WIND STACKER DON'T DO.

It don't waste any grain; if anybody says it does, it proves that his separator is wasting grain.

It don't thresh any grain, unless the separator fails to do it.

It don't require any time to set it.

It don't require a man on the stack.

It don't drag the straw back by the return of slats, as is always done by any other kind of a stacker.

It don't have to be dug out of the straw stack before you can move, when a job of threshing is done.

It don't cost anything for repairs.

It don't waste any time in moving the machine to make the largest size straw stacks.

It don't delay the thresherman putting in slats that are torn off by the straw hands with their fork handles.

It don't keep the whole outfit idle while the straw hands are resting and taking water.

It don't let the machine stand idle while the hands are quarreling about who has to go on the stack.

It don't sow the seeds of disease and death by filling men's lungs with dust.

It don't require the whole neighborhood to do a little job of threshing.

It don't make a straw stack unless there is some straw to stack, and it don't do it then unless there is a man to operate it.

WHAT THE WIND STACKER DOES.

It takes all the men off the straw stack, and allows them to be more usefully employed.

It enables the thresherman to run the machine from morning till noon, and from noon till night without stopping.

It makes custom for the machine, because, when properly handled, it pleases the farmer.

It makes threshing a pleasant and cleanly job instead of one to be dreaded.

It relieves the thresherman from care and trouble, and thus prolongs his life and makes him happier while he lives.

It prevents him from using bad language, because of the annoyances occasioned by the old slatted styles of stackers, and thus prevents him from imperiling his immortal soul.

It permits the men about a threshing machine to be cleanly and neat and fit to sleep in a bed instead of being fit only to sleep in a barn loft.

It puts all the straw in one stack that can be put through the largest size separator in a day, and it makes the prettiest and best stack that can possibly be made; if properly handled, better than any number of men can make by hand or by the aid of any other device.

AMERICAN AGRICULTURIST

ESTABLISHED 1842

Year Book and Almanac

FOR 1898

A Cyclopædia of Progress and Events—A Guide
to Markets, Marketing and Prices

A Treasury of Statistics for Farm or Home, and Office or Factory. A
Reference Work on Every Subject Pertaining to Agriculture, In-
dustry, Commerce and Markets; Public Affairs,
Economics and Politics; Household Edu-
cation, Religion and Society

AN ALMANAC

Of Calendars, the Weather, Astronomical Data, Hints for Each
Month, Dates, Etc

Accurate

Reliable

Non-Partisan

Authoritative

By HERBERT MYRICK, The Editor American Agriculturist

American Agriculturist Library

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1898

COUNTING ROOM CALENDAR.

1898

JANUARY

S	M	T	W	T	F	S
--	--	--	--	--	--	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	--	--	--	--	--

MAY

S	M	T	W	T	F	S
121	122	123	124	125	126	127
128	129	130	131	132	133	134
135	136	137	138	139	140	141
142	143	144	145	146	147	148
149	150	151	--	--	--	--
--	--	--	--	--	--	--

SEPTEMBER

S	M	T	W	T	F	S
--	--	--	--	244	245	246
247	248	249	250	251	252	253
254	255	256	257	258	259	260
261	262	263	264	265	266	267
268	269	270	271	272	273	--
274	275	276	277	278	279	280

FEBRUARY

S	M	T	W	T	F	S
--	--	32	33	34	35	36
37	38	39	40	41	42	43
44	45	46	47	48	49	50
51	52	53	54	55	56	57
58	59	--	--	--	--	--
--	--	--	--	--	--	--

JUNE

S	M	T	W	T	F	S
--	--	--	152	153	154	155
156	157	158	159	160	161	162
163	164	165	166	167	168	169
170	171	172	173	174	175	176
177	178	179	180	181	--	--
--	--	--	--	--	--	--

OCTOBER

S	M	T	W	T	F	S
--	--	--	--	--	--	274
275	276	277	278	279	280	281
282	283	284	285	286	287	288
289	290	291	292	293	294	295
296	297	298	299	300	301	302
303	304	--	--	--	--	--

MARCH

S	M	T	W	T	F	S
--	--	60	61	62	63	64
65	66	67	68	69	70	71
72	73	74	75	76	77	78
79	80	81	82	83	84	85
86	87	88	89	90	--	--
--	--	--	--	--	--	--

JULY

S	M	T	W	T	F	S
--	--	--	--	--	182	183
184	185	186	187	188	189	190
191	192	193	194	195	196	197
198	199	200	201	202	203	204
205	206	207	208	209	210	211
212	31	--	--	--	--	--

NOVEMBER

S	M	T	W	T	F	S
--	--	305	306	307	308	309
310	311	312	313	314	315	316
317	318	319	320	321	322	323
324	325	326	327	328	329	330
331	332	333	334	--	--	--
--	--	--	--	--	--	--

APRIL

S	M	T	W	T	F	S
--	--	--	--	--	91	92
93	94	95	96	97	98	99
100	101	102	103	104	105	106
107	108	109	110	111	112	113
114	115	116	117	118	119	120
--	--	--	--	--	--	--

AUGUST

S	M	T	W	T	F	S
--	213	214	215	216	217	218
219	220	221	222	223	224	225
226	227	228	229	230	231	232
233	234	235	236	237	238	239
240	241	242	243	--	--	--
--	--	--	--	--	--	--

DECEMBER

S	M	T	W	T	F	S
--	--	--	--	335	336	337
338	339	340	341	342	343	344
345	346	347	348	349	350	351
352	353	354	355	356	357	358
359	360	361	362	363	364	365
--	--	--	--	--	--	--

'95	Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
Jan	1	2	3	4	5	6	7
Feb	8	9	10	11	12	13	14
Mar	15	16	17	18	19	20	21
Apr	22	23	24	25	26	27	28
May	29	30	31				
June							

'96	Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
Jan	1	2	3	4	5	6	7
Feb	8	9	10	11	12	13	14
Mar	15	16	17	18	19	20	21
Apr	22	23	24	25	26	27	28
May	29	30	31				
June							

'97	Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
Jan	1	2	3	4	5	6	7
Feb	8	9	10	11	12	13	14
Mar	15	16	17	18	19	20	21
Apr	22	23	24	25	26	27	28
May	29	30	31				
June							

'98	Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
Jan	1	2	3	4	5	6	7
Feb	8	9	10	11	12	13	14
Mar	15	16	17	18	19	20	21
Apr	22	23	24	25	26	27	28
May	29	30	31				
June							

'99	Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
Jan	1	2	3	4	5	6	7
Feb	8	9	10	11	12	13	14
Mar	15	16	17	18	19	20	21
Apr	22	23	24	25	26	27	28
May	29	30	31				
June							

1900	Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
Jan	1	2	3	4	5	6	7
Feb	8	9	10	11	12	13	14
Mar	15	16	17	18	19	20	21
Apr	22	23	24	25	26	27	28
May	29	30	31				
June							

A CENTENNIAL CALENDAR

For ascertaining any Day of the Week for any given time within the Present Century.

YEARS 1801 to 1900.

	31 Jan.	28 Feb.	31 Mar.	30 April.	31 May.	30 June.	31 July.	31 Aug.	30 Sept.	31 Oct.	30 Nov.	31 Dec.
1801	4	7	7	3	5	1	3	6	2	4	7	2
1802	5	1	1	4	6	2	4	7	3	5	1	3
1803	6	2	2	5	7	3	5	1	4	6	2	4
1804	7	3	3	6	1	3	6	1	4	7	2	5
1805	1	4	4	7	2	5	7	3	6	1	4	6
1806	2	5	5	1	3	6	1	4	7	2	5	7
1807	3	6	6	2	4	7	2	5	1	3	6	1
1808	4	7	7	3	5	1	3	6	2	4	7	2
1809	5	1	1	4	6	2	4	7	3	5	1	3
1810	6	2	2	5	7	3	5	1	4	6	2	4
1811	7	3	3	6	1	3	6	1	4	7	2	5
1812	1	4	4	7	2	5	7	3	6	1	4	6
1813	2	5	5	1	3	6	1	4	7	2	5	7
1814	3	6	6	2	4	7	2	5	1	3	6	1
1815	4	7	7	3	5	1	3	6	2	4	7	2
1816	5	1	1	4	6	2	4	7	3	5	1	3
1817	6	2	2	5	7	3	5	1	4	6	2	4
1818	7	3	3	6	1	3	6	1	4	7	2	5
1819	1	4	4	7	2	5	7	3	6	1	4	6
1820	2	5	5	1	3	6	1	4	7	2	5	7
1821	3	6	6	2	4	7	2	5	1	3	6	1
1822	4	7	7	3	5	1	3	6	2	4	7	2
1823	5	1	1	4	6	2	4	7	3	5	1	3
1824	6	2	2	5	7	3	5	1	4	6	2	4
1825	7	3	3	6	1	3	6	1	4	7	2	5
1826	1	4	4	7	2	5	7	3	6	1	4	6
1827	2	5	5	1	3	6	1	4	7	2	5	7
1828	3	6	6	2	4	7	2	5	1	3	6	1
1829	4	7	7	3	5	1	3	6	2	4	7	2
1830	5	1	1	4	6	2	4	7	3	5	1	3
1831	6	2	2	5	7	3	5	1	4	6	2	4
1832	7	3	3	6	1	3	6	1	4	7	2	5
1833	1	4	4	7	2	5	7	3	6	1	4	6
1834	2	5	5	1	3	6	1	4	7	2	5	7
1835	3	6	6	2	4	7	2	5	1	3	6	1
1836	4	7	7	3	5	1	3	6	2	4	7	2
1837	5	1	1	4	6	2	4	7	3	5	1	3
1838	6	2	2	5	7	3	5	1	4	6	2	4
1839	7	3	3	6	1	3	6	1	4	7	2	5
1840	1	4	4	7	2	5	7	3	6	1	4	6
1841	2	5	5	1	3	6	1	4	7	2	5	7
1842	3	6	6	2	4	7	2	5	1	3	6	1
1843	4	7	7	3	5	1	3	6	2	4	7	2
1844	5	1	1	4	6	2	4	7	3	5	1	3
1845	6	2	2	5	7	3	5	1	4	6	2	4
1846	7	3	3	6	1	3	6	1	4	7	2	5
1847	1	4	4	7	2	5	7	3	6	1	4	6
1848	2	5	5	1	3	6	1	4	7	2	5	7
1849	3	6	6	2	4	7	2	5	1	3	6	1
1850	4	7	7	3	5	1	3	6	2	4	7	2
1851	5	1	1	4	6	2	4	7	3	5	1	3
1852	6	2	2	5	7	3	5	1	4	6	2	4
1853	7	3	3	6	1	3	6	1	4	7	2	5
1854	1	4	4	7	2	5	7	3	6	1	4	6
1855	2	5	5	1	3	6	1	4	7	2	5	7
1856	3	6	6	2	4	7	2	5	1	3	6	1
1857	4	7	7	3	5	1	3	6	2	4	7	2
1858	5	1	1	4	6	2	4	7	3	5	1	3
1859	6	2	2	5	7	3	5	1	4	6	2	4
1860	7	3	3	6	1	3	6	1	4	7	2	5
1861	1	4	4	7	2	5	7	3	6	1	4	6
1862	2	5	5	1	3	6	1	4	7	2	5	7
1863	3	6	6	2	4	7	2	5	1	3	6	1
1864	4	7	7	3	5	1	3	6	2	4	7	2
1865	5	1	1	4	6	2	4	7	3	5	1	3
1866	6	2	2	5	7	3	5	1	4	6	2	4
1867	7	3	3	6	1	3	6	1	4	7	2	5
1868	1	4	4	7	2	5	7	3	6	1	4	6
1869	2	5	5	1	3	6	1	4	7	2	5	7
1870	3	6	6	2	4	7	2	5	1	3	6	1
1871	4	7	7	3	5	1	3	6	2	4	7	2
1872	5	1	1	4	6	2	4	7	3	5	1	3
1873	6	2	2	5	7	3	5	1	4	6	2	4
1874	7	3	3	6	1	3	6	1	4	7	2	5
1875	1	4	4	7	2	5	7	3	6	1	4	6
1876	2	5	5	1	3	6	1	4	7	2	5	7
1877	3	6	6	2	4	7	2	5	1	3	6	1
1878	4	7	7	3	5	1	3	6	2	4	7	2
1879	5	1	1	4	6	2	4	7	3	5	1	3
1880	6	2	2	5	7	3	5	1	4	6	2	4
1881	7	3	3	6	1	3	6	1	4	7	2	5
1882	1	4	4	7	2	5	7	3	6	1	4	6
1883	2	5	5	1	3	6	1	4	7	2	5	7
1884	3	6	6	2	4	7	2	5	1	3	6	1
1885	4	7	7	3	5	1	3	6	2	4	7	2
1886	5	1	1	4	6	2	4	7	3	5	1	3
1887	6	2	2	5	7	3	5	1	4	6	2	4
1888	7	3	3	6	1	3	6	1	4	7	2	5
1889	1	4	4	7	2	5	7	3	6	1	4	6
1890	2	5	5	1	3	6	1	4	7	2	5	7
1891	3	6	6	2	4	7	2	5	1	3	6	1
1892	4	7	7	3	5	1	3	6	2	4	7	2
1893	5	1	1	4	6	2	4	7	3	5	1	3
1894	6	2	2	5	7	3	5	1	4	6	2	4
1895	7	3	3	6	1	3	6	1	4	7	2	5
1896	1	4	4	7	2	5	7	3	6	1	4	6
1897	2	5	5	1	3	6	1	4	7	2	5	7
1898	3	6	6	2	4	7	2	5	1	3	6	1
1899	4	7	7	3	5	1	3	6	2	4	7	2
1900	5	1	1	4	6	2	4	7	3	5	1	3

NOTE.—To ascertain any day of the week in any year of the present century, first look in the table of years for the year required, and under the months are figures which refer to the corresponding figures at the head of the columns of days below. Example: To find what day of the week Sept. 2 fell on in the year 1873; in the table of years look for 1873, and in a parallel line under Sept. is fig. 1, which directs to col. 1, in which it will be seen that Sept. 2 fell on Tuesday.

LEAP YEARS. e

1804	1832	1860	1888
1808	1836	1864	1892
1812	1840	1868	1896
1816	1844	1872	....
1820	1848	1876	....
1824	1852	1880	....
1828	1856	1884	....

This table will give the day of the week on which a person was born.

	1	2	3	4	5	6	7
M	1	T	1	W	1	F	1
T	2	W	2	T	2	S	2
W	3	T	3	F	3	S	3
T	4	F	4	S	4	M	4
F	5	S	5	M	5	T	5
S	6	M	6	T	6	W	6
M	7	T	7	F	7	S	7
S	8	F	8	M	8	T	8
T	9	M	9	T	9	S	9
W	10	T	10	F	10	S	10
T	11	F	11	S	11	M	11
F	12	S	12	M	12	T	12
S	13	M	13	T	13	W	13
M	14	T	14	W	14	F	14
T	15	W	15	F	15	S	15
W	16	F	16	S	16	M	16
T	17	S	17	M	17	T	17
F	18	M	18	T	18	W	18
S	19	T	19	W	19	F	19
M	20	W	20	F	20	S	20
T	21	F	21	S	21	M	21
W	22	S	22	M	22	T	22
T	23	M	23	T	23	W	23
F	24	T	24	F	24	S	24
S	25	F	25	S	25	M	25
M	26	S	26	M	26	T	26
T	27	M	27	T	27	W	27
W	28	T	28	W	28	F	28
T	29	W	29	F	29	S	29
F	30	F	30	S	30	M	30
S	31	S	31	M	31	T	31

Chronological Eras, 1898.

6611.—Julian Period.

7406-7407.—Byzantine Era, 7407 begins September 1st.

5658-5659.—Jewish Era, 5659 beginning on September 17th, or, more exactly, sunset September 16th.

2650-2651.—Since the foundation of Rome, according to Varro.

1614.—Era of Diocletian.

2645.—Since the beginning of Era of Nabonassar, which has been assigned to 3967th year of Julian Period; corresponding in the notation of chronologists to the 747th, and in the notation of astronomers to the 746th year B. C.

2674.—Of the Olympiads, or the second year of the 669th Olympiad, beginning in July, 1898, if we fix the era of the Olympiads at 775½ years B. C., or near the beginning of July of the year 3938 of the Julian Period.

2210.—Of the Grecian Era, or the Era of Selucidæ.

2558.—Of the Japanese Era and 31st year of period called "Meiji."

1316.—Mohammedan, or Era of Hegira, beginning May 22d, 1898. January 1st, 1898, 2,414,291st day since beginning of the Julian Period. The 123d year of the Independence of the United States of America begins July 4th, 1898.

Protestant Episcopal Church Calendar, 1898.

- Jan. 1. Circumcision.
 " 6. Epiphany.
 " 25. Conversion of St. Paul.
 Feb. 2. Purification of Virgin Mary.
 " 6. Septuagesima.
 " 13. Sexagesima.
 " 20. Quinquagesima.
 " 22. Shrove Tuesday.
 " 23. Ash Wednesday.
 " 24. St. Matthias.
 " 27. First Sunday in Lent.
 Mch. 25. Annunciation of Virgin Mary.
 April 3. Palm Sunday.
 " 8. Good Friday.
 " 10. Easter Sunday.
 " 17. Low Sunday.
 " 25. St. Mark.
 May 1. SC. Philip and James.
 " 15. Rogation Sunday.
 " 19. Ascension day.

- May 29. Whit Sunday.
 June 5. Trinity Sunday.
 " 9.

Announcement

With this third volume, *American Agriculturist's* Year Book and Almanac enters upon a definite scheme of an annual publication. The plan is to make each annual volume not only intensely valuable of itself, but to have it properly supplement its predecessors. Thus, while indispensable for daily use during the year to come, each number adds a volume to the ready-reference library and record of practical affairs that should be a feature of every farm or home, office or factory. Duplication of matters in our almanacs for 1896 and 1897 has been avoided, but references are made to important

topics in those works. Each volume will thus be full of new and fresh data upon matters of universal interest. Witness the departments, "Our Own Country and Government," and "Our Neighbors in North and South America." Much of this data is not to be found elsewhere in connected form. "The Great Problems of 1898" present the facts upon the great issues of the coming year in such shape that all may grasp these facts. This Year Book states in convenient form the uncontroverted facts and official data from which the varied opinions are drawn that create controversy, agitation, progress.

This Year Book does not express opinions, except upon a few leading reforms that *American Agriculturist* is doing so much to bring about. Hence the present volume's advocacy of reform in land transfer, the refunding of farm

mortgages at lower rates of interest, the campaign for savings banks, and the free library movement. These are some of the movements that are helping to bring about the new departure in rural life that *American Agriculturist* is doing so much to foster.

Extreme care and much painstaking labor have been employed to insure accuracy of all data herein. Nothing has been taken for granted, but facts have been verified from first hands and official sources. Old tables of doubtful authority are discarded.

Much matter on agriculture and other topics that has appeared in many works of reference, was found to be so inaccurate that we have constructed entirely new tables with great thorough-

ness from the most reliable scientific and practical sources. In this work we have had the hearty co-operation of the United States Department of Agriculture, Weather Bureau, State Experiment Stations, etc., all of which is hereby gratefully acknowledged, and is credited in more detail within.

Anyone who buys or sells produce or live stock, family supplies, commodities, or shares and bonds, will find the commercial features of this work invaluable. The accurate commercial data upon which merchants and financiers

A Market Guide

so largely depend for success in business, have been too costly and too formidable for the masses. In this book it is "boiled down," simplified and made available for the people. Much original information is also contained herein that cannot be had elsewhere in any form—tables of supply, demand and prices of all staples, and numerous special crops, etc. It gives light on the great question, *when and where to buy and sell*. Our object has been to so arrange all the data in this department that it may be of the utmost usefulness in aiding judgment upon the probable future of prices. This part of the book fitly supplements the worldwide crop-reporting system and market reviews for which *American Agriculturist* is famous at home and abroad. "Commercial Agriculture" is a new feature in a work of this kind, but we believe that it alone will prove worth many times the cost of the Year Book, just as the similar features in *American Agriculturist* of New York (and in its western edition, *Orange Judd Farmer* of Chicago, and its eastern edition, *The New England Homestead* of Springfield, Mass) make those weekly magazines indispensable.

In the Statistics

brevity and clearness are combined with accuracy. Wherever possible, only the essential figures are given. The whole quantities, also fractions in detail, were *employed* in the tables from which our summaries were compiled, but only the important facts are *printed*. The busy reader, or one in a hurry to look up data, or the average person who wishes to investigate the subject, is satisfied to know that the United States corn crop was 2,272 million bushels in 1895, instead of having to digest the figures in detail, 2,272,378,000. So, too, with other subjects. Where necessary, notably in election returns and much financial data, figures are of course given in detail. The heading or footnote of all tables explain this.

Illustrations,

charts, diagrams, etc., are freely used. Many of these are colored; most of them have never before appeared; all will be found to quickly aid eye and mind to grasp the subject.

The Advertisements

herein are taken only of concerns in whom we have confidence. They complete the value of the work as a ready-reference and directory of where to buy and sell.

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The Reader

will confer a favor upon the editor by notifying us of any other matters that he or she would like to have covered in this work for 1899. We shall esteem it a favor to hear from *you* on this matter.

AMERICAN AGRICULTURIST ALMANAC.

THE TWELVE SIGNS OF THE ZODIAC.

HEAD AND FACE.

Aries. ♈
The Ram.

ARMS.
Gemini. ♊
The Twins.

HEART.
Leo. ♌
The Lion.

REINS.
Libra. ♎
The Balance.

THIGHS.
Sagittarius. ♐
The Bowman.

LEGS.
Aquarius. ♒
The Waterman.



NECK.
Taurus. ♉
The Bull.

BREAST.
Cancer. ♋
The Crab.

BOWELS.
Virgo. ♍
The Virgin.

SECRETS.
Scorpio. ♏
The Scorpion.

KNEES.
Capricornus. ♐
The Goat.

THE FEET.
Pisces. ♓
The Fishes.

PLANETS REGARDED AS MORNING AND EVENING STARS, 1898.

Morning stars.—Mercury (♿) from January 6 to March 16, May 1 to June 30, September 5 to October 19 and from December 21 to the end of the year. Venus (♀) from beginning of the year to February 15 and from December 1 to the end of the year.

Evening stars.—Mercury (♿) from the beginning of the year to January 6, March 16 to May 1, June 30 to September 5 and from October 19 to December 21. Venus (♀) from February 15 to December 1.

PLANETS BRIGHTEST OR BEST SEEN IN 1898.

Mercury, January 29, before sunrise; April 10, after sunset; May 28, before sunrise; August 9, after sunset; September 21, before sunrise; and December 3, after sunset. Venus at greatest brilliancy October 27, after sunset. Mars not this year. Jupiter at opposition March 25, Saturn at opposition May 30, Uranus at opposition May 22, Neptune at opposition December 15.

SEASONS FOR 1898. (EASTERN STANDARD TIME.)

SEASONS FOR 1898. (EASTERN STANDARD TIME.)							D	H	M	
			D	H	M					
Winter begins	1897,	December	21	8	13	morning;	lasts	89	0	53
Spring begins	1898,	March	20	9	6	morning;	lasts	92	20	1
Summer begins	1898,	June	21	5	7	morning;	lasts	93	14	28
Autumn begins	1898,	September	22	7	35	evening;	lasts	89	18	24
Winter begins	1898,	December	21	1	59	evening.				

EMBER DAYS, 1898.

Wed, Fri and Sat, March	2, 4 and 5	Wed, Fri and Sat, June	1, 3 and 4
Wed, Fri and Sat, Sept	21, 23 and 24	Wed, Fri and Sat, Dec	14, 16 and 17

Persevere and prosper.

ECLIPSES, 1898.

In the year 1898 there will be six eclipses—three of the sun and three of the moon.

1.—A partial eclipse of the moon January 7; visible generally in the eastern parts of North America, in South America, Europe, Africa and Asia. 2.—A total eclipse of the sun January 22; not visible here, but visible in the eastern portions of Africa and Europe, the central and southern portions of Asia, and a portion of the Indian ocean. 3.—A partial eclipse of the moon July 3; invisible in the United States, but visible generally in Europe and small islands of the south Pacific ocean. 5.—A partial eclipse of the sun December 13; invisible here. 6.—A total eclipse of the moon December 27; visible to North and South America, Europe, Asia and Africa, occurring in the United States according to the following table:

	East'rn Stand'd Time			
	D	H	M	
Moon enters shadow.....	27	4	37	P M
Total eclipse begins.....	27	5	58	P M
Middle of eclipse.....	27	6	42	P M
Total eclipse ends.....	27	7	27	P M
Moon leaves shadow.....	27	8	36	P M

For central time subtract one hour; for mountain time, two hours; for Pacific time, three hours.

Jewish Holidays.

New Year—September 27-28, 1897.

Best market days to market stock will probably be Monday, September 20, to Thursday, September 23. Old hens, turkeys, ducks and geese are wanted most for this holiday.

Day of Atonement—October 6, 1897.

Best market days for stock will be Thursday, September 30, and Friday, October 1, to Monday, October 4. All kinds of prime stock will be taken, and spring chickens and roosters will be especially wanted.

Feast of Tabernacles—October 11-12, 1897.

Best market days will be Thursday, October 7, and Friday, October 8. Old hens, ducks and fat geese will be most in demand.

Feast of Conclusion—October 18-19, 1897.

Wednesday, October 13, to Friday,

October 15, will probably be the best market days. Prime chickens, ducks and geese will sell.

Purim—March 8, 1898.

Best market days Wednesday, March 2, to Friday, March 4. Old chickens and prime hen turkeys will be wanted.

Passover—April 7, 1898.

Best market days will be Monday, April 4, to Tuesday, April 5. All kinds of fat, prime stock will be wanted.

Close of Passover—April 14, 1898.

Best market days Friday, April 8, Monday, April 11, and Tuesday, April 12. Prime quality of all kinds will be wanted.

Feast of Weeks—May 27-28, 1898.

Best market days, Monday, May 23 to Wednesday, May 25. Choice old hens will be especially wanted, but all kinds will be inquired for.

The End of the Century.

The year 1900 will not be a leap year simply because, being a hundredth year, although it is divisible by 4, it is not divisible by 400 without a remainder. This is not the real reason, but a result of it; the real reason being the establishment of the Gregorian rule, made in 1582.

The 19th century will not end till midnight of Monday, Dec 31, 1900, although the old quarrel will probably again be renewed as to what constitutes a century and when it winds up, and thousands will insist on a premature burial of the old century at midnight of Dec 31, 1899.

Most haste, least speed.

But as a century means 100 years, and as the first century could not end till a full 100 years had passed, nor the second till 200 years had passed, etc, it is not logically clear why the 19th century should be curtailed and broken off before we have had the full 1900 years.

The 1st of April and 1st of July in any year, and in leap year the 1st of January, fall on the same day of the week.

The 1st of September and 1st of December in any year fall on the same week day.

The 1st of January and the 1st of October in any year fall on the same week day, except it be a leap year.

The 1st day of February, of March and of November of any year fall on the same day of the week, unless it be a leap year, when Jan 1, April 1 and July 1 fall on the same week day.

The 1st of May, 1st of June and 1st of August in any year never fall on the same week day, nor does any one of the three ever fall on the same week day on which any other month in the same year begins, except in leap year, when the 1st of February and the 1st of August fall on the same week day.

To find out on what day of the week any date of this century fell: Divide the year by 4 and let the remainder go. Add the quotient and the year together, then add 3 more. Divide the result by 7, and if the remainder is 0, March 1 of that year was Sunday; if 1, Monday; if 2, Tuesday, and so on.

For the last century, do the same thing, but add 4 instead of 3. For the next century, add 2 instead.

Christmas of any year always falls on the same day of the week as the 2d of January of that year, unless it be a leap year, when it is the same week day as the 3d day of January of that year.

Easter is always the first Sunday after the full moon that happens on or next after March 21. It is not easy to see how it can occur earlier than March 22, or later than April 26 in any year.

New Year (Jan 1) will happen on Sunday but once more during this century; that will be in 1899. In the next century it will occur 14 times only, as follows: 1905, 1911, 1922, 1928, 1933, 1939, 1950, 1956, 1961, 1967, 1978, 1984, 1989 and 1995. The intervals are regular—6-5-6-11, 6-5-6-11—except the interval which includes the 'hundredth year that is not a century, when there is a break—as 1893, 1899, 1905, 1911—when three intervals of six years come together; after that plain sailing till 2001, when the old intervals will occur in regular order.

The first day of the year 1899 comes on Sunday, January 1. John Waite of Rapid City, S D, suggests that each month have only 28 days. A thirteenth month to be added for this purpose, it having 29 days to accommodate the 365th day of the year, and in leap year 366 days; the two extra days of the thirteenth month being called Dominus day and Metior day. This would make every New Year's day come on Sunday, Jan 1, and there would be no change in the calendar from one year to another.

Divisions of Time.

Astronomers make use of several different kinds of time: mean solar time; true or apparent solar time; and sidereal time.

Solar Time.—Solar time is that used for all purposes of ordinary life, and is measured by the daily motion of the sun. A Solar Day is the interval of time between two successive transits of the sun over the same meridian; and

the hour angle of the sun is called Solar Time. This is the most natural and direct measure of time. But the intervals between the successive returns of the sun to the same meridian are not exactly equal, owing to the varying motion of the earth around the sun, and to the obliquity of the ecliptic. The interval between the sun's transits over the meridian being unequal, it is impossible to regulate a clock so that it shall accurately follow the sun.

To avoid the irregularity which would arise from using the true sun as the measure of time, a fictitious sun, called the Mean Sun, is supposed to move in the equator with a uniform velocity. This mean sun is supposed to keep, on the average, as near the real sun as is consistent with perfect uniformity of motion; it is sometimes in advance of it, and sometimes behind it, the greatest deviation being about 16 minutes of time.

Mean Solar Time, which is perfectly equable in its increase, is measured by the motion of this mean sun. The clocks in ordinary use and the chronometers used by navigators are regulated to mean solar time.

True, or Apparent Solar Time, is measured by the motion of the real sun.

The difference between apparent and mean time is called the equation of time. By means of it we change apparent to mean time, or the reverse. Thus, if the apparent time be given, the mean time corresponding to it will be obtained by adding or subtracting the equation of time.

Sidereal Time.—Sidereal time is measured by the daily motion of the stars; or, as it is used by astronomers, by the daily motion of that point in the equator from which the true right ascension of the stars is counted. This point is the vernal equinox, and its hour angle is called sidereal time. Astronomical clocks, regulated to sidereal time, are called sidereal clocks.

A sidereal day is the interval of time between the transit of the vernal equinox over the meridian, and its next succeeding return to the same meridian. It is about 3 minutes and 56 seconds shorter than the mean solar day; 365 $\frac{1}{4}$ solar days, or a year, being divided into 366 $\frac{1}{4}$ sidereal days. It is divided into 24 hours. The sidereal hours are counted from 0 to 24, commencing with the instant of the passage of the true vernal equinox over the upper meridian, and ending with its return to the same meridian. About March 21st of each year the sidereal clock agrees with the mean time or ordinary clock, and the former gains on the latter about 3 minutes and 56 seconds per day, so that at the end of a year it will have gained an entire day, and will again agree with the mean time clock.

WHAT IS A DAY?

Day.—The civil day, according to the customs of society, commences at midnight and comprises 24 hours, from one midnight to the next following. The hours are counted from 0 to 12 from midnight to noon after which they are again reckoned from 0 to 12 from noon to midnight. Thus the day is divided into two periods of 12 hours each, of which the first is marked a .m. and the last is marked p. m.

The astronomical day commences at noon on the civil day of the same date. It also comprises 24 hours, but they are reckoned from 0 to 24, and from the noon of one day to that of the next following. The astronomical as well as the civil time may be either apparent or mean, according as it is reckoned from apparent noon or mean noon.

The civil day begins twelve hours before the astronomical day; therefore the first period of the civil day answers to the last part of the preceding astronomical day, and the last period of the civil day corresponds to the first part of the same astronomical day. Thus, January 9th, 2 o'clock, a. m., civil time, is January 8th, 14 hours, astronomical time; and January 9th, 2 o'clock, p. m., civil time, is also January 9th, 2 hours, astronomical time. The rule, then, for the transformation of civil time into astronomical time is this:

If the civil time is marked a. m., take one from the day and add twelve to the hours, and the result is the astronomical time wanted; if the civil time is marked p. m., take away the designation p. m., and the astronomical time is had without further change.

To change astronomical to civil time, we simply write p. m. after it if it is less than 12 hours. If greater than 12 hours we subtract 12 hours from it, add 1 to the days and write a. m.

For example, January 3d, 23 hours, astronomical time, is January 4th, 11 o'clock, a. m., civil time.—The American Ephemeris.

THE CALENDARS.

Julian Calendar.—Julius Caesar, in B. C. 45, ordered that those years whose date numbers are exactly divisible by 4, should contain 366 days each, and all

Many acres won't make a wiseacre.

other years 365 days. The intercalary day was introduced by counting the sixth day before the Kalends of March twice. The average length of the Julian year is therefore $365\frac{1}{4}$ days which is too long by 11 minutes and 14 seconds. The Julian calendar continued in use until A. D. 1582, at which time the date of the beginning of seasons occurred 10 days later than when this method of reckoning time was established.

Gregorian Calendar.—The Gregorian year was introduced by Pope Gregory XIII. It consists of 365 days, but every year exactly divisible by four, except those centurial years which are not exactly divisible by 400, contains 366 days. Thus, in 400 years 97 are leap years and 303 common years. The Gregorian calendar was introduced into England and her colonies in 1752, at which time the equinox had retrograded 11 days since the Council of Nice in A. D. 325, when the Festival of Easter was established and the equinox occurred March 21st; hence September 3d, 1752, was called September 14th, and at the same time the commencement of the legal year was changed from March 25th to January 1st, so that the year 1751 lost the months of January and February and the first 24 days of March. The difference between the Julian and Gregorian calendars is now 12 days.

French Republican Calendar.—Although reckoned from September 22d, 1792, the French Republican calendar was not introduced until November 22d, 1793. It remained in use only until December 31st, 1805, when the Gregorian calendar was restored. The months varied in different years; thus Nivose 1 began December 21st in 1793, December 22d in 1795, December 21st in 1796, December 22d in 1799, etc. The following are the dates for the year 1804, the last complete year of this calendar:

Vendemiaire (Vintage)	Sept. 23 to Oct. 22.	Germinal (Budding)	Mch. 22 to Apr. 21.
Brumaire (Foggy)	Oct. 23 to Nov. 22.	Floreal (Flowery)	Apr. 21 to May 20.
Frimaire (Sleety)	Nov. 22 to Dec. 21.	Prairial (Pasture)	May 21 to June 20.
Nivôse (Snowy)	Dec. 22 to Jan. 21.	Messidor (Harvest)	June 20 to July 19.
Pluviôse (Rainy)	Jan. 21 to Feb. 20.	Thermidor (Hot)	July 20 to Aug. 19.
Ventôse (Windy)	Feb. 20 to Mch. 19.	Fructidor (Fruit)	Aug. 19 to Sept. 18.

OTHER DIVISIONS.

The Ancient Hour.—The day is said to have first been divided into hours from 293 B. C., when a sun dial was set up in the temple of Quirinus at Rome. The early Egyptians divided the day and night each into twelve hours, a custom adopted by the Jews and Greeks, probably from the Babylonians. In Rome the time was called by public criers prior to the invention of water clocks, 158 B. C. Time was measured in early times in England by means of wax candles, three inches burning an hour. Day began at sunrise among most of the Northern nations, at sunset among the Jews and Athenians, and at midnight with the Romans.

The Ancient and Modern Year.—The Athenians began the year in June, the Macedonians in September, the Romans first in March and afterward in January, the Persians on August 11, the ancient Mexicans on February 23, the Mohammedans in July. The Chinese year, which begins early in February, is similar to the Mohammedan in having 12 months of 29 and 30 days alternately; but in every 19 years there are 7 years which have 13 months. This is not quite correct, and the Chinese have, therefore, formed a cycle of 60 years, in which period 22 intercalary months occur.

Date of Beginnings of Eras, Epochs and Periods.

	Began.		Began.
Grecian Mundane Era....	Sept. 1, 5598 B. C.	Tyrian Era.....	Oct. 19, 125 B. C.
Civil Era of Constantinople.....	Sept. 1, 5508 "	Sidonian Era.....	Oct. 1, 110 "
Alexandrian Era.....	Aug. 29, 5502 "	Cæsarian Era of Antioch...	Sept. 1, 48 "
Ecclesiastical Era of Antioch.....	Sept. 1, 5492 "	Julian Year.....	Jan. 1, 45 "
Julian Period.....	Jan. 1, 4713 "	Spanish Era.....	Jan. 1, 38 "
Mundane Era.....	Oct. 1, 4008 "	Actian Era.....	Jan. 1, 30 "
Jewish Mundane Era....	Oct. 1, 3761 "	Augustan Era.....	Feb. 14, 27 "
Era of Abraham.....	Oct. 1, 2015 "	Vulgar Christian Era.....	Jan. 1, 1 A. D.
Era of the Olympiads....	July 1, 776 "	Destruction of Jerusalem..	Sept. 1, 69 "
Roman Era (A. U. C.)....	April 24, 753 "	Era of Maccabees.....	Nov. 24, 166 "
Era of Mabonassar.....	Feb. 26, 747 "	Era of Diocletian.....	Sept. 17, 284 "
Metonic Cycle.....	July 15, 432 "	Era of Ascension.....	Nov. 12, 295 "
Grecian Era.....	Sept. 1, 312 "	Era of Armenians.....	July 7, 552 "
		Mohammedan Era.....	July 16, 622 "
		Persian Era of Yezdegird..	June 16, 632 "

The Stars, and How to Use the Star Charts.

PROF. DAVID P. TODD.

In the latitude of New York, or about the average of all places in the United States, the number of lucid stars visible, if we watch the whole year through, is nearly 4000. Lucid stars are stars that may be seen without the use of telescopes. Astronomers divide them into six arbitrary classes called magnitudes, stars of the first magnitude being the brightest, and numbering only 20, while the number increases rapidly the higher the magnitude. The faintest stars shown on the charts on Pages 14, 15, 22, 23, 30, 31, 38, 39, are of the 4th magnitude, and are always readily seen when the sky is clear, even on moonlight nights.

Imagine the hemispherical dome of the nightly sky cut into four quarters by two huge planes, standing vertically, and at right angles to one another. Let one of them pass through the north and south points of the horizon, and it will describe the observer's meridian on the sky, as marked at the middle of the left-hand chart on each page following. The other plane will pass through the east and west points of the horizon, and will trace out the prime vertical—the central line of the right-hand chart on each page. Meridian and prime vertical intersect at the zenith, the point at the apex of each separate chart and marked Z, or zenith. At the hours underneath each map, then, the four charts at each opening of the almanac show the stars of the firmament, starting from the north and going round toward the right through the east, south and west, back to north again. If the configurations of the sky are desired for another hour or another month than those given beneath the map, each chart will suffice as it is, by subtracting time proportioned to two hours for each month, if the season is later; or adding in the proportion of two hours for each month, if the season is earlier. For example, each of the four cardinal charts for January is equally true for 6.30 p. m. February 15, and for 12.30 a. m., November 15.

Because of the earth's turning round on its axis toward the east, nearly all the stars drift slowly over toward the west. Every star completes its motion in a circle once each day, and these circles grow smaller and smaller the nearer a star is to the north pole of the heavens. This point is within about two moon-breadths of Polaris (near the middle of each of the four northern charts). The stars on a large part of each northern map move in daily circles so small that they are wholly above the horizon. These stars, therefore, never set. The four arrows show which way the stars are moving—above the pole, to the left or westward; below it, eastward; at the right of it, upward; to the left of it, downward. Passing to the eastern maps, the stars are in general drifting upward and toward the right or south, as the arrows show. In the southern maps they are crossing the meridian horizontally, while in the western maps their drift is just opposite to that when in the east; that is, they are going downward, and toward the right or north. As all stars accomplish their daily circuit in exactly the same time, those on the great circle marked equator (on all maps except the northern ones) move swiftest; and the further north or south from the equator the star is, the slower its seeming motion, because the daily circle it traverses is smaller. Wherever practicable, the brighter planets are shown among the stars near the sun's yearly path through the sky, which is called the ecliptic. The asterisms completing the round of the heavens, and on either side of the ecliptic are the well-known signs or constellations of the zodiac.

The Latin names of the principal constellations (visible in our latitudes) and the English meanings of a few of them are as follows:—

One good turn deserves another.

Andromeda.

Antlia (Pump).
 Aquarius (Waterman).
 Aquila (Eagle).
 Aries (Ram).
 Auriga (Charioteer).
 Boötes (Herdsman).
 Cælum.
 Camelopardalis (Camelopard).
 Cancer (Crab).
 Canis Venatici (Hunting Dogs).
 Canis Major (Great Dog).
 Canis Minor (Lesser Dog).
 Capricornus (Goat).
 Cassiopeia.
 Centaurus (Centaur).
 Cepheus.
 Cetus (Whale).
 Columba (Dove).
 Coma Berenices (Berenice's Hair).
 Corona Borealis (Northern Crown).
 Corvus (Crow).
 Crater (Cup).
 Crux (Cross).
 Cygnus (Swan).
 Delphinus (Dolphin).
 Draco (Dragon).
 Equuleus (Little Horse).
 Eridanus (River Po).
 Fornax (Furnace).
 Gemini (Twins).

Grus (Crane).

Hercules.
 Hydra (Water-Serpent).
 Lacerta (Lizard).
 Leo (Lion).
 Leo Minor (Lesser Lion).
 Lepus (Hare).
 Libra (Balances).
 Lupus (Wolf).
 Lynx (Lynx).
 Lyra (Harp).
 Monoceros (Unicorn).
 Norma.
 Ophiuchus (Serpent Bearer).
 Orion.
 Pegasus (Flying Horse).
 Perseus.
 Phoenix.
 Piscis Australis (Southern Fish).
 Pisces (Fishes).
 Sagitta (Arrow).
 Sagittarius (Archer).
 Scorpio (Scorpion).
 Serpens (Serpent).
 Sextans (Sextant).
 Taurus (Bull).
 Triangulum (Triangle).
 Ursa Major (Great Bear).
 Ursa Minor (Lesser Bear).
 Virgo (Virgin).
 Vulpecula (Little Fox).

Small letters of the Greek alphabet are used to indicate the more prominent stars of a constellation, α representing its brightest star, β the next, γ the third, and so on. The Greek letter is followed by the Latin genitive of name of constellation; thus α Orionis is the most conspicuous star in the constellation of Orion, γ Virginis is the third star in order of brightness in Virgo, and so on. Following are these letters; and they are properly written either as symbols, or as the English names of these symbols:—

α Alpha	η Eta	ν Nu	τ Tau
β Beta	θ Theta	ξ Xi	υ Upsilon
γ Gamma	ι Iota	$\omicron$ Omicron	ϕ Phi
δ Delta	κ Kappa	π Pi	χ Chi
ϵ Epsilon	λ Lambda	ρ Rho	ψ Psi
ζ Zeta	μ Mu	σ Sigma	ω Omega

TO MEASURE GRAIN OR VEGETABLES IN CRIB.

Multiply the length, breadth and depth in feet together and this product by eight and point off one figure in the product for decimals. The result will be the number of bushels. To get number of bushels of shelled corn in a crib of corn in the ear, multiply length, breadth and depth together and divide by two.

TO MEASURE WOOD.

Divide the product of length, breadth and height, expressed in feet, by 128, and the result will be the number of cords in the pile.



NORTHERN CONSTELLATIONS

8.30 p. m. January 15.

9.30 p. m. January 1.

10.30 p. m. December 15.

Slightly west of due north and almost halfway from horizon to zenith is the pole star (Polaris). Underneath it are the other stars of Ursa Minor, forming the Little Dipper. Still further below is extended the curving form of the Dragon, in the shape of a huge letter Y. On the left of it and above, almost on a level with the pole star, is the great X of Cepheus. Still above it is the much flattened M, comprising the principal stars of Cassiopeia. Just beyond it hangs Andromeda, and from these two constellations the Galaxy extends to the point overhead. Between it and Polaris is Camelopardalis, thinly strewn with stars. Eastward from the zenith burns Capella. In the northeast are the "Pointers" of Ursa Major, and below them, the other stars forming the familiar Great Dipper.



EASTERN CONSTELLATIONS

8.30 p. m. January 15.

9.30 p. m. January 1.

10.30 p. m. December 15.

Downward from Auriga the Lynx trails its long expanse, and beneath it low in the east-northeast, is the Sickle in Leo. Following the ecliptic upward and bending toward the south, are the other constellations of the zodiac in order—Cancer, Gemini, Taurus. From the zenith the Milky Way lies southeasterly, enveloping B Tauri. Almost underneath it gleams bright Procyon in the Little Dog, and still underneath are the inconspicuous stars of Hydra. Between stars Gamma and Delta in Cancer, is Praesepe, a fine cluster of stars visible to the naked eye as a faint patch of milky light. Through January, Venus rises in the southeast, shortly before the sun. On January 15, Jupiter rises somewhat south of due east, about 11 p. m.

TO PUT A GLOSS ON LINEN—Add to the starch a little sugar or white wax or butter, iron in the usual way. Then pass a damp cloth over the linen, lay it on a smooth board, and polish with a polishing iron made for the purpose and sold in house-furnishing stores for about a dollar.



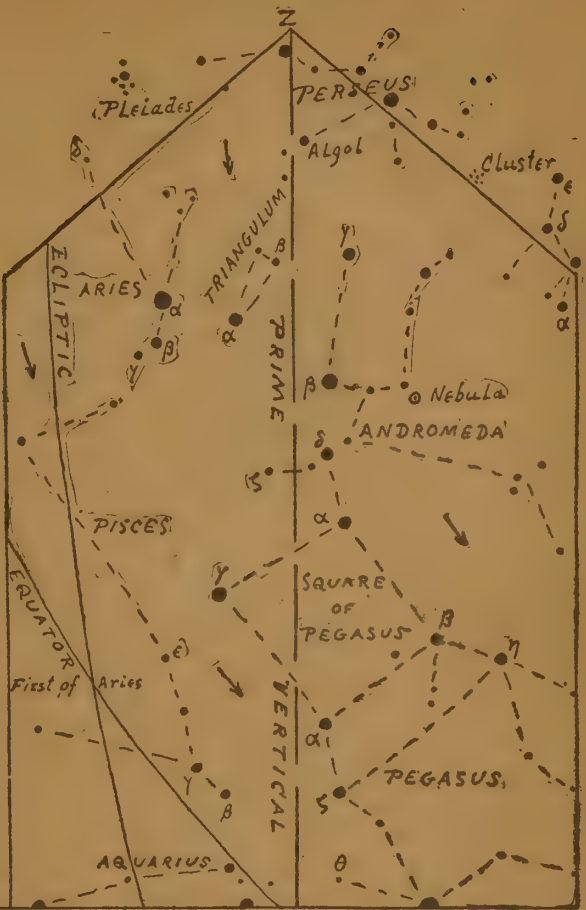
SOUTHERN CONSTELLATIONS

8.30 p. m. January 15.

9.30 p. m. January 1.

10.30 p. m. December 15.

Almost due south, and well up toward the zenith are two very prominent loose clusters of stars in Taurus, the Hyades just east of the meridian, and the Pleiades about as far west of it. Beneath them and on their left, is the most brilliant region of the starry firmament, Orion and the Great Dog. Just below the three conspicuous stars of Orion's belt, is a remarkable object known as the great nebula of Orion. The naked eye will distinguish the star Theta Orionis, which it surrounds, as slightly filmy, and even a small telescope shows the wisps of its soft and marvelous light. Below Orion is the Hare, and underneath it in the south-southeast is the Dove. West of it and low down on the meridian is Coelum, and above it trails the tedious course of the River Po.



WESTERN CONSTELLATIONS

8.30 p. m. January 15.

9.30 p. m. January 1.

10.30 p. m. December 15.

A few degrees downward from the zenith toward the west horizon, is the Demon star of the Arabians, the variable star Algol, whose magnitude drops quite suddenly every two days, 21 hours, and returns as suddenly to its full brightness. Below it in order are the little Triangle, the bright stars of Andromeda, part of which form, with conspicuous stars of the expansive constellation underneath, the great square of Pegasus. From the west-southwest point of the horizon runs the ecliptic almost vertically upward, sloping somewhat to the south. Aquarius is in the horizon, and above in zodiacal succession are Pisces, and the three bright stars of the Ram. Through February and March, Venus sets in the southwest or west, shortly after the sun.

TO WASH CALICO WITHOUT FADING—Infuse 3 gills of salt in 4 quarts of water. Put in the calico while the solution is hot, and leave until the latter is cold. It is said that in this way the colors are rendered permanent and will not fade by subsequent washing.

Method saves brains; machinery saves muscles.

Weather Signals.

The forecasts are telegraphed from Washington to local representatives and are displayed by means of flags from the post office or some prominent building.



Number 1, white flag, six feet square, indicates clear or fair weather. Number 2, blue flag, six feet square, indicates rain or snow. Number 3, white and blue flag (parallel bars of white and blue), six feet square, indicates that local rains or showers will occur, and that the rainfall will not be general. Number 4, black triangular flag, four feet at the base and six feet in length, always refers to temperature; when placed above numbers 1, 2, or 3, it indicates warmer weather; when placed below numbers 1, 2, or 3 it indicates colder weather; when not displayed, the indications are that the temperature will remain stationary, or that the change in temperature will not vary more than five degrees from the temperature of the same hour of the preceding day from June to August, inclusive, seven degrees from November to March, inclusive, and not more than six degrees for the remaining months of the year. Number 5, white flag, six feet square, with black square in center, indicates the approach of a sudden and decided fall in temperature, and is usually ordered at least twenty-four hours in advance of the cold wave. When number 5 is displayed, number 4 is always omitted.

A special storm flag, red with black square in center (not shown above), is prescribed for use in North and South Dakota, Minnesota (except at Lake stations), Iowa, Nebraska and Wyoming, to indicate high winds, accompanied by snow, with temperature below freezing.

When displayed on poles, the signals should be arranged to read downward; when displayed from horizontal supports, a small streamer should be attached to indicate the point from which the signals are to be read.

- No. 1, alone, indicates fair weather, stationary temperature.
- No. 2, alone, indicates rain or snow, stationary temperature.
- No. 3, alone, indicates local rain, stationary temperature.
- No. 1, with No. 4 above it, indicates fair weather, warmer.
- No. 1, with No. 4 below it, indicates fair weather, colder.
- No. 2, with No. 4 above it, indicates warmer weather, rain or snow.
- No. 2, with No. 4 below it, indicates colder weather, rain or snow.
- No. 3, with No. 4 above it, indicates warmer weather with local rains.
- No. 3, with No. 4 below it, indicates colder weather with local rains.
- No. 1, with No. 5, indicates fair weather, cold wave.
- No. 2, with No. 5, indicates wet weather, cold wave.

WEATHER SIGNS.

Barometer—Stationary; no change. Slowly rising; fair weather. Slowly falling; one-fifth to one-third of an inch indicates severe storm. Sudden fall; high winds and rain. Sudden rise; storm or breaking up of storm. Rapid change from high to low, or from low to high; heavy gales.

Clouds—Long lines of clouds starting from a common point often indicate a storm from that direction. The so-called "Mackerel Sky," when high, light-colored fleecy clouds give a ribbed appearance to the sky, is

Love the farm and the farm loves you.

1st MONTH.

18

JANUARY.

98

31 DAYS

DAY OF YEAR.		DAY OF MONTH.		DAY OF WEEK.		LATITUDE OF MONTREAL: Up. Mich. Wis. Minn. Dak. Idaho, Mon. and Wash.				LATITUDE OF BOSTON: N. England, New York State, Lower Mich. Wis. Iowa, Wyoming and Oregon.				LATITUDE OF N. YORK CITY: Philadelphia, Conn., N. Jersey, Pa., Ohio, Indiana, Ill., Neb., and N. Cal.				LATITUDE OF WASHINGTON: Md., Va., Ky., Mo., Kas., Col., Utah and Cal.				LATITUDE OF CHARLESTON: N. Carolina, Georgia, Ala., Miss., Ark., N. Mexico, Arizona, So. Cal.				LATITUDE OF NEW ORLEANS: Florida, Louis'a, Tex., Mex., and Lower Cal.					
		Sun rises		Moon sets		H. M.		Sun rises		Moon sets		H. M.		Sun rises		Moon sets		H. M.		Sun rises		Moon sets		H. M.		Sun rises		Moon sets		H. M.	
1	1	Sa	7 41	4 26	2 1	6 53	7 30	4 39	1 54	6 6	7 25	4 43	1 50	3 0	7 19	4 48	1 47	3 5	7 35	5 1	1 34	2 20	6 56	5 11	1 29						
2	2	Sa	7 41	4 27	3 6	6 53	7 30	4 39	2 57	7 0	7 25	4 44	2 52	3 53	7 19	4 49	2 47	3 5	7 35	5 12	2 31	3 15	6 56	5 12	2 27						
3	3	Mo	7 41	4 28	4 9	6 53	7 30	4 40	3 58	7 53	7 25	4 45	3 53	4 43	7 19	4 50	3 47	3 5	7 35	5 13	3 29	4 8	6 56	5 13	3 22						
4	4	Tu	7 41	4 29	5 8	6 53	7 30	4 41	4 56	8 41	7 25	4 46	4 51	5 28	7 19	4 51	4 45	3 5	7 35	5 14	4 24	4 57	6 57	5 14	4 17						
5	5	We	7 41	4 30	6 4	6 53	7 30	4 42	5 52	9 25	7 25	4 47	5 46	6 9	7 19	4 52	5 40	3 5	7 35	5 15	5 18	5 40	6 57	5 14	5 10						
6	6	Th	7 41	4 31	7 5	6 53	7 30	4 43	6 41	10 7	7 25	4 48	6 35	6 44	7 19	4 53	6 29	3 5	7 35	5 16	6 8	6 21	6 57	5 15	6 0						
7	7	Fr	7 41	4 32	8 16	6 53	7 30	4 44	7 48	11 24	7 25	4 49	7 48	7 18	7 19	4 54	7 48	4 5	7 35	5 17	7 10	7 0	6 57	5 15	7 1						
8	8	Sa	7 41	4 33	9 22	6 53	7 29	4 45	8 51	12 24	7 25	4 50	8 51	7 50	7 19	4 55	8 35	5 10	7 35	5 18	8 12	8 12	6 57	5 16	8 1						
9	9	Sa	7 40	4 35	10 32	6 53	7 29	4 46	9 51	1 24	7 24	4 51	9 51	8 23	7 19	4 56	9 37	5 11	7 35	5 19	9 25	9 25	6 57	5 17	9 53						
10	10	Mo	7 40	4 36	11 38	6 53	7 29	4 47	10 51	2 49	7 24	4 52	10 51	8 59	7 19	4 57	10 51	5 12	7 35	5 20	10 48	10 48	6 57	5 18	10 52						
11	11	Tu	7 40	4 37	12 41	6 53	7 29	4 48	11 51	4 21	7 24	4 53	11 51	9 37	7 19	4 58	11 51	5 13	7 35	5 21	11 35	11 35	6 57	5 19	11 55						
12	12	We	7 39	4 38	1 44	6 53	7 28	4 49	12 51	5 2	7 24	4 54	12 51	10 17	7 18	4 59	12 51	5 14	7 35	5 22	12 30	12 30	6 57	5 20	12 53						
13	13	Th	7 39	4 39	2 47	6 53	7 28	4 50	1 51	6 31	7 23	4 55	1 51	10 59	7 18	5 0	1 51	5 16	7 35	5 23	1 33	1 33	6 57	5 21	1 33						
14	14	Fr	7 38	4 41	3 50	6 53	7 28	4 51	3 0	7 40	7 23	4 56	3 0	11 45	7 18	5 1	3 0	5 17	7 35	5 24	2 45	2 45	6 57	5 22	2 45						
15	15	Sa	7 38	4 42	4 51	6 53	7 27	4 53	4 0	8 31	7 23	4 57	4 0	12 37	7 17	5 3	4 0	5 18	7 35	5 25	3 29	3 29	6 57	5 23	3 29						
16	16	Sa	7 37	4 43	5 6	6 53	7 27	4 54	5 1	9 24	7 22	4 58	5 1	13 48	7 16	5 4	5 0	5 20	7 35	5 26	4 38	4 38	6 57	5 24	4 38						
17	17	Mo	7 36	4 44	6 1	6 53	7 26	4 55	6 1	10 11	7 22	4 59	6 1	14 52	7 15	5 6	6 1	5 22	7 35	5 27	5 40	5 40	6 56	5 25	5 40						
18	18	Tu	7 36	4 46	7 2	6 53	7 26	4 56	7 2	11 2	7 21	5 2	7 2	15 5	7 15	5 7	7 2	5 23	7 35	5 28	6 33	6 33	6 56	5 26	6 33						
19	19	We	7 35	4 47	8 3	6 53	7 25	4 57	8 3	12 13	7 20	5 3	8 3	16 5	7 15	5 8	8 3	5 24	7 35	5 29	7 9	7 9	6 56	5 27	7 9						
20	20	Th	7 35	4 49	9 4	6 53	7 25	4 59	9 4	13 26	7 20	5 4	9 4	17 5	7 15	5 9	9 4	5 25	7 35	5 30	8 18	8 18	6 56	5 28	8 18						
21	21	Fr	7 34	4 50	10 5	6 53	7 24	5 0	10 5	14 39	7 20	5 5	10 5	18 5	7 15	5 10	10 5	5 26	7 35	5 31	9 20	9 20	6 56	5 28	9 20						
22	22	Sa	7 33	4 51	11 16	6 53	7 23	5 1	11 16	15 51	7 19	5 6	11 16	19 5	7 14	5 11	11 16	5 27	7 35	5 32	10 11	10 11	6 54	5 29	10 11						
23	23	Sa	7 32	4 53	12 27	6 53	7 23	5 2	12 27	16 5	7 18	5 7	12 27	20 5	7 14	5 12	12 27	5 28	7 35	5 33	11 22	11 22	6 54	5 30	11 22						
24	24	Mo	7 31	4 54	1 38	6 53	7 22	5 3	1 38	17 5	7 17	5 8	1 38	21 5	7 13	5 13	1 38	5 29	7 35	5 34	12 33	12 33	6 53	5 31	12 33						
25	25	Tu	7 30	4 56	2 49	6 53	7 21	5 4	2 49	18 5	7 16	5 9	2 49	22 5	7 12	5 14	2 49	5 30	7 35	5 35	1 40	1 40	6 53	5 32	1 40						
26	26	We	7 29	4 57	3 60	6 53	7 20	5 5	3 60	19 5	7 15	5 10	3 60	23 5	7 11	5 15	3 60	5 31	7 35	5 36	2 51	2 51	6 54	5 33	2 51						
27	27	Th	7 29	4 58	4 11	6 53	7 20	5 6	4 11	20 5	7 15	5 11	4 11	24 5	7 10	5 16	4 11	5 32	7 35	5 37	3 60	3 60	6 54	5 34	3 60						
28	28	Fr	7 28	4 58	5 22	6 53	7 19	5 7	5 22	21 5	7 14	5 12	5 22	25 5	7 10	5 17	5 22	5 33	7 35	5 38	4 11	4 11	6 53	5 34	4 11						
29	29	Sa	7 27	5 0	6 33	6 53	7 18	5 8	6 33	22 5	7 13	5 13	6 33	29 5	7 9	5 19	6 33	5 34	7 35	5 39	5 22	5 22	6 52	5 35	5 22						
30	30	Sa	7 26	5 1	7 44	6 53	7 17	5 11	7 44	24 5	7 13	5 15	7 44	30 5	7 8	5 20	7 44	5 35	7 35	5 40	6 33	6 33	6 52	5 36	6 33						
31	31	Mo	7 25	5 3	8 55	6 53	7 16	5 13	8 55	25 5	7 12	5 16	8 55	31 5	7 8	5 20	8 55	5 36	7 35	5 41	7 22	7 22	6 52	5 36	7 22						

MOON'S PHASES.				BOSTON.		NEW YORK.		WASHINGTON.		CHICAGO.		ST. PAUL.		ST. LOUIS.	
				D. H. M.	E.	D. H. M.	E.	D. H. M.	E.	D. H. M.	E.	D. H. M.	E.	D. H. M.	E.
FULL MOON...				7 7 24	E.	7 7 24	E.	7 7 24	E.	7 6 24	E.	7 6 24	E.	7 6 24	E.
LAST QUARTER...				15 10 44	M.	15 10 44	M.	15 10 44	M.	15 9 44	M.	15 9 44	M.	15 9 44	M.
NEW MOON...				22 2 55	M.	22 2 55	M.	22 2 55	M.	22 1 55	M.	22 1 55	M.	22 1 55	M.
FIRST QUARTER...				29 9 33	M.	29 9 33	M.	29 9 33	M.	29 8 33	M.	29 8 33	M.	29 8 33	M.

MOON'S PHASES.

FULL MOON... 15 10 44 M.
 LAST QUARTER... 22 2 55 M.
 NEW MOON... 29 9 33 M.
 FIRST QUARTER... 29 9 33 M.

BOSTON.

NEW YORK.

WASHINGTON.

CHICAGO.

ST. PAUL.

ST. LOUIS.

a sign of stormy weather to come. Clouds near together but moving in different directions, indicate contrary wind currents and approaching rain. High, light clouds, not ribbed, indicate fair weather. Medium-high clouds shaped like an anvil precede a thunder storm. Small, very dark clouds rapidly driving under a roof of moderately dark clouds, are a sign of heavy rain. A thick bank of gray clouds in the east, with small dark clouds in front, is often a sign of a storm in spring and fall. In the eastern United States, strong, damp east winds indicate a storm. High, woolly clouds indicate settled, dry weather. A bank of clouds hanging low down in the south, in winter, is a sign of a snowstorm.

The Sun—A ray-like appearance near the sun is sometimes called the sun "drawing water." It is a sign of rain. Bright red sunsets are a sign of dry weather, but darker hues and blue and purple indicate rain. When the haziness of the air sometimes disappears suddenly and the sun sets pale and clear, rain may be expected. A whitish or yellowish sky after sunset is a sign of rain. At sunrise, a rosy or gray sky is a sign of fair weather, but a deep red sky indicates bad weather. A clear sunrise which soon becomes overcast, is a sign of rain.

Other signs—Haziness is a sign of dry weather. Heavy dew means fair weather, while the absence of dew for several mornings is a sign of rain. A halo or ring around the moon is a sign of rain.

Frost can often be foretold by its so-called "frosty feeling" in the air. At this time the air is dry and heat radiates rapidly. It is noticed that the difference of temperature between shade and sunshine is unusually marked and the shadows are deep.

To Predict Frost—When the dew-point is more than 10° F above frost point, there is, according to Professor Kedgie, but little danger of frost. To estimate nearly the temperature of dew-point when the temperature of the air is between 45 and 65° F, multiply the difference between the wet-bulb and the dry-bulb thermometers by two and subtract the product from the temperature of the dry-bulb. If the remainder is above 42° F, there is little danger of frost. The nearer the remainder approaches 32° , the more danger of frost, especially if the air is still and clouds disappear at sunset.

How to Use A Barometer.

A Rising Barometer.

A "Rapid" rise indicates unsettled weather.

A "Gradual" rise indicates settled weather.

A "Rise," with dry air, and cold increasing in summer, indicates wind from northward and if rain has fallen, better weather is to be expected.

A "Rise," with moist air and a low temperature, indicates wind and rain from northward.

A "Rise," with southerly wind, indicates fine weather.

A Steady Barometer.

With dry air and a seasonable temperature, indicates a continuance of very fine weather.

A Falling Barometer.

A "Rapid" fall indicates stormy weather.

A "Rapid" fall, with westerly winds, indicates stormy weather from northward.

A "Fall," with a northerly wind, indicates storm, with rain and hail in summer, and snow in winter.

A "Fall," with increasing moisture in the air, and the heat increasing, indicates wind and rain from southward.

A "Fall," with dry air and cold increasing (in winter) indicates snow.

A "Fall," after very calm and warm weather, indicates rain, with squally weather.

A genius in his own country is like gold in the mine.

2d MONTH.

18

FEBRUARY.

98

28 DAYS

DAY OF YEAR.	DAY OF MONTH.	DAY OF WEEK.	LATITUDE			LATITUDE			LATITUDE			LATITUDE			LATITUDE			LATITUDE		
			Sun rises.	Moon sets	H. W.	Sun rises	Moon sets	H. W.	Sun rises	Moon sets	H. W.	Sun rises	Moon sets	H. W.	Sun rises	Moon sets	H. W.	Sun rises	Moon sets	H. W.
32	1	Tu	7 23 56	3 56	H. M.	7 15 14	3 44	H. M.	7 11 51	3 39	H. M.	7 7 52	3 33	H. M.	6 56 53	3 33	H. M.	6 51 53	3 33	H. M.
33	2	We	7 22 57	4 49	H. M.	7 14 15	4 36	H. M.	7 10 51	4 31	H. M.	7 6 52	4 24	H. M.	6 55 53	4 24	H. M.	6 50 53	4 24	H. M.
34	3	Th	7 20 59	5 33	H. M.	7 13 16	5 21	H. M.	7 9 52	5 16	H. M.	7 5 53	5 10	H. M.	6 54 53	5 10	H. M.	6 50 53	5 10	H. M.
35	4	Fr	7 19 51	6 12	H. M.	7 11 18	6 10	H. M.	7 8 53	6 06	H. M.	7 4 54	6 00	H. M.	6 53 53	6 00	H. M.	6 49 53	6 00	H. M.
36	5	Sa	7 18 52	6 43	H. M.	7 10 19	6 34	H. M.	7 7 54	6 30	H. M.	7 3 55	6 25	H. M.	6 52 53	6 25	H. M.	6 48 53	6 25	H. M.
37	6	Su	7 17 53	7 13	H. M.	7 9 20	7 03	H. M.	7 6 55	7 23	H. M.	7 2 56	7 19	H. M.	6 51 53	7 19	H. M.	6 47 53	7 19	H. M.
38	7	Mo	7 15 55	7 42	H. M.	7 7 22	7 35	H. M.	7 5 56	7 45	H. M.	7 1 57	7 48	H. M.	6 50 53	7 48	H. M.	6 46 53	7 48	H. M.
39	8	Tu	7 14 56	7 45	H. M.	7 6 23	7 45	H. M.	7 4 57	7 45	H. M.	7 0 58	7 45	H. M.	6 49 53	7 45	H. M.	6 45 53	7 45	H. M.
40	9	We	7 12 58	8 52	H. M.	7 5 24	8 50	H. M.	7 2 59	8 49	H. M.	7 0 59	8 48	H. M.	6 48 53	8 48	H. M.	6 44 53	8 48	H. M.
41	10	Th	7 11 59	10 09	H. M.	7 4 25	10 04	H. M.	7 1 60	9 58	H. M.	6 59 53	9 57	H. M.	6 47 53	9 57	H. M.	6 43 53	9 57	H. M.
42	11	Fr	7 10 51	11 26	H. M.	7 3 26	11 19	H. M.	7 0 61	11 15	H. M.	6 58 53	11 14	H. M.	6 46 53	11 14	H. M.	6 42 53	11 14	H. M.
43	12	Sa	7 9 52	12 43	H. M.	7 2 27	12 10	H. M.	6 57 53	12 10	H. M.	6 56 53	12 09	H. M.	6 45 53	12 09	H. M.	6 41 53	12 09	H. M.
44	13	Su	7 8 53	1 00	H. M.	7 1 28	1 00	H. M.	6 56 53	1 00	H. M.	6 55 53	1 00	H. M.	6 44 53	1 00	H. M.	6 40 53	1 00	H. M.
45	14	Mo	7 7 54	1 58	H. M.	7 0 29	1 47	H. M.	6 55 53	1 42	H. M.	6 54 53	1 42	H. M.	6 43 53	1 42	H. M.	6 39 53	1 42	H. M.
46	15	Tu	7 6 55	2 56	H. M.	6 54 53	2 59	H. M.	6 53 53	2 53	H. M.	6 52 53	2 47	H. M.	6 42 53	2 47	H. M.	6 38 53	2 47	H. M.
47	16	We	7 5 56	3 54	H. M.	6 53 53	3 52	H. M.	6 51 53	3 46	H. M.	6 50 53	3 40	H. M.	6 41 53	3 40	H. M.	6 37 53	3 40	H. M.
48	17	Th	7 4 57	4 52	H. M.	6 52 53	4 50	H. M.	6 50 53	4 44	H. M.	6 49 53	4 38	H. M.	6 40 53	4 38	H. M.	6 36 53	4 38	H. M.
49	18	Fr	7 3 58	5 50	H. M.	6 51 53	5 48	H. M.	6 49 53	5 42	H. M.	6 48 53	5 36	H. M.	6 39 53	5 36	H. M.	6 35 53	5 36	H. M.
50	19	Sa	7 2 59	6 48	H. M.	6 50 53	6 46	H. M.	6 48 53	6 40	H. M.	6 47 53	6 34	H. M.	6 38 53	6 34	H. M.	6 34 53	6 34	H. M.
51	20	Su	7 1 60	7 46	H. M.	6 49 53	7 44	H. M.	6 47 53	7 38	H. M.	6 46 53	7 32	H. M.	6 37 53	7 32	H. M.	6 33 53	7 32	H. M.
52	21	Mo	7 0 61	8 44	H. M.	6 48 53	8 40	H. M.	6 46 53	8 34	H. M.	6 45 53	8 28	H. M.	6 36 53	8 28	H. M.	6 32 53	8 28	H. M.
53	22	Tu	6 59 52	9 42	H. M.	6 47 53	9 40	H. M.	6 45 53	9 34	H. M.	6 44 53	9 28	H. M.	6 35 53	9 28	H. M.	6 31 53	9 28	H. M.
54	23	We	6 58 53	10 40	H. M.	6 46 53	10 38	H. M.	6 44 53	10 32	H. M.	6 43 53	10 26	H. M.	6 34 53	10 26	H. M.	6 30 53	10 26	H. M.
55	24	Th	6 47 54	11 38	H. M.	6 45 53	11 36	H. M.	6 43 53	11 30	H. M.	6 42 53	11 24	H. M.	6 33 53	11 24	H. M.	6 29 53	11 24	H. M.
56	25	Fr	6 46 55	12 36	H. M.	6 44 53	12 34	H. M.	6 42 53	12 28	H. M.	6 41 53	12 22	H. M.	6 32 53	12 22	H. M.	6 28 53	12 22	H. M.
57	26	Sa	6 45 56	1 34	H. M.	6 43 53	1 32	H. M.	6 40 53	1 26	H. M.	6 39 53	1 20	H. M.	6 31 53	1 20	H. M.	6 27 53	1 20	H. M.
58	27	Su	6 44 57	2 32	H. M.	6 42 53	2 30	H. M.	6 38 53	2 24	H. M.	6 37 53	2 18	H. M.	6 30 53	2 18	H. M.	6 26 53	2 18	H. M.
59	28	Mo	6 43 58	3 30	H. M.	6 41 53	3 28	H. M.	6 37 53	3 22	H. M.	6 36 53	3 16	H. M.	6 29 53	3 16	H. M.	6 25 53	3 16	H. M.

OF NEW ORLEANS:
Florida, Louis'a,
Tex., Mex., and
Lower Cal.OF CHARLESTON: N. Car-
olina, Georgia, Ala.,
Miss., Ark., N. Mexico,
Arizona, So. Cal.OF WASHINGTON:
Md., Va., Ky.,
Mo., Kas., Col.,
Utah and Cal.OF N. YORK CITY: Phila-
delphia, Conn., N. Jer-
sey, Pa., Ohio, Indiana,
Ill., Neb., and N. Cal.OF BOSTON: N. England,
New York State, Lower
Mich. Wis. Iowa, Wyo-
ming and Oregon.OF MONTREAL: Up.
Mich. Wis. Minn.
Dak. Idaho, Mon.
and Wash.

SUN SLOW.

ST. LOUIS.

ST. PAUL.

CHICAGO.

CINCINNATI

N. ORLEANS

CHARL'TON

WASH'TON.

NEW YORK.

BOSTON.

MONTREAL

MOON'S PHASES.

D. H. M.
6 0 24 E.
13 6 35 E.
20 1 41 E.
28 5 13 M.D. H. M.
6 0 24 E.
13 6 35 E.
20 1 41 E.
28 5 13 M.D. H. M.
6 0 24 E.
13 6 35 E.
20 1 41 E.
28 5 13 M.D. H. M.
6 0 24 E.
13 6 35 E.
20 1 41 E.
28 5 13 M.D. H. M.
6 0 24 E.
13 6 35 E.
20 1 41 E.
28 5 13 M.D. H. M.
6 0 24 E.
13 6 35 E.
20 1 41 E.
28 5 13 M.D. H. M.
6 0 24 E.
13 6 35 E.
20 1 41 E.
28 5 13 M.D. H. M.
6 0 24 E.
13 6 35 E.
20 1 41 E.
28 5 13 M.D. H. M.
6 0 24 E.
13 6 35 E.
20 1 41 E.
28 5 13 M.D. H. M.
6 0 24 E.
13 6 35 E.
20 1 41 E.
28 5 13 M.D. H. M.
6 0 24 E.
13 6 35 E.
20 1 41 E.
28 5 13 M.FULL MOON...
LAST QUARTER...
NEW MOON...
FIRST QUARTER...

Comparison of Thermometer Scales.

A little study of the accompanying information and diagram will enable anyone to form a clear idea of the various thermometer scales, and to convert temperatures from one scale to another.

Scale.	Temperature of melting ice.	Temperature of boiling water.	No. of degrees between melting ice and boiling water.
Centigrade.....	0	100	100
Celsius	100	0	100
Reaumur.....	0	80	80
Fahrenheit.....	32	212	180

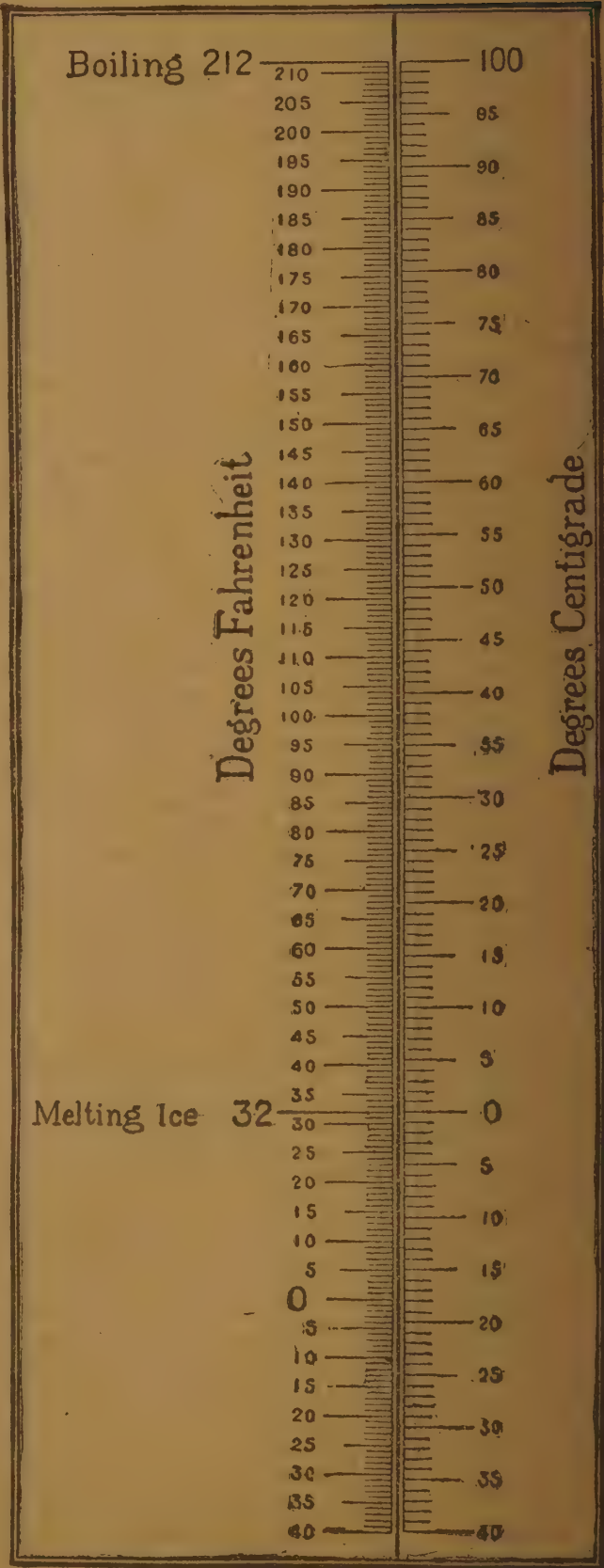
From the above it will be seen that the Celsius scale is not identical with the Centigrade, as is very generally supposed, but resembles it only in that it has the same number of degrees between the freezing and boiling points of water.

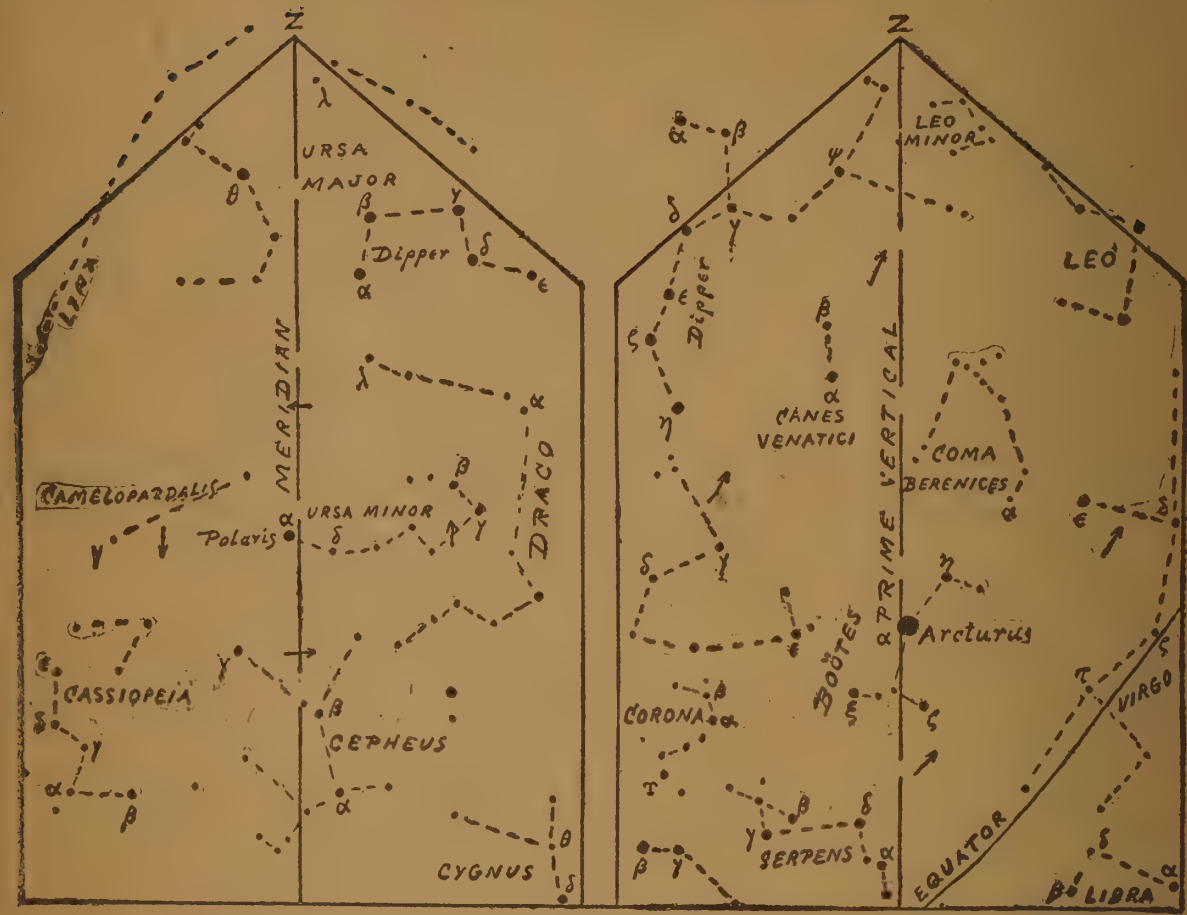
Thermometers are now, however, never graduated according to the Celsius scale, and the use of the word as synonymous with Centigrade is quite erroneous.

Only Fahrenheit and Centigrade scales are in general use, and the accompanying plate is designed to enable observers to convert temperature readings from one scale to the other without resorting to a mathematical formula.

For accurate and precise reductions between the different scales, the following rules should be used:

- 1. To convert Fahrenheit to Centigrade: Subtract 32 and multiply by five-ninths.
- 2. To convert Centigrade to Fahrenheit: Multiply by nine-fifths and add 32.
- 3. To convert Fahrenheit to Reaumur: Subtract 32 and multiply by four-ninths.
- 4. To convert Reaumur to Fahrenheit: Multiply by nine-fourths and add 32.
- 5. To convert Centigrade to Reaumur: Multiply by four-fifths.
- 6. To convert Reaumur to Centigrade: Multiply by five-fourths.





NORTHERN CONSTELLATIONS

8.30 p. m. April 15.
9.30 p. m. April 1.
10.30 p. m. March 15.

Polaris is still to the west of true north, and the little dipper of Ursa Minor stretches off to the right. Half surrounding it is the form of Draco, above which is the bowl of the Great Dipper, with the Pointers almost on the meridian. At this season the entire extent of this splendid constellation of the Great Bear is best seen of all the year. The star Zeta in its tail is a double star, as seen by the naked eye, and the spectroscope shows that Mizar itself has another star revolving round it once every 52 days, so close that even the telescope cannot alone reveal it. Beneath the pole star is Cepheus; to the west of it is Cassiopeia, and to the east, low down is Cygnus. Through these three constellations extends the Milky Way, rather low down to be well seen.

EASTERN CONSTELLATIONS

8.30 p. m. April 15.
9.30 p. m. April 1.
10.30 p. m. March 15.

Nearly overhead is the lesser asterism of the Little Lion. Lower down and nearly on a level, are Ursa Major on the left and the Lion on the right. Still below, on the left, are the Hunting Dogs, and somewhat south of due east, is the Hair of Berenice. The great star which blazes due east, well up from the horizon, is Arcturus, with a retinue of lustrous stars in Boötes. On his left is the beautiful curve of the Northern Crown, and on his right in the ecliptic is Virgo, the most conspicuous star of which is Spica. On the horizon beneath Corona, the form of Hercules is rising, and between it and Boötes is the Serpent. The very bright star to the right of Virgo on the above chart is the giant planet Jupiter. On April 15, Saturn, the dull yellow planet, rises among the stars of Scorpio in the southeast about 10 p. m., and four minutes earlier for each subsequent day.

FIREPROOF GLUE—A handful of quicklime, mixed in four ounces of linseed oil and boiled to a good thickness, makes, when spread on plates and hardened, a glue which can be used in the ordinary way, but will resist fire.



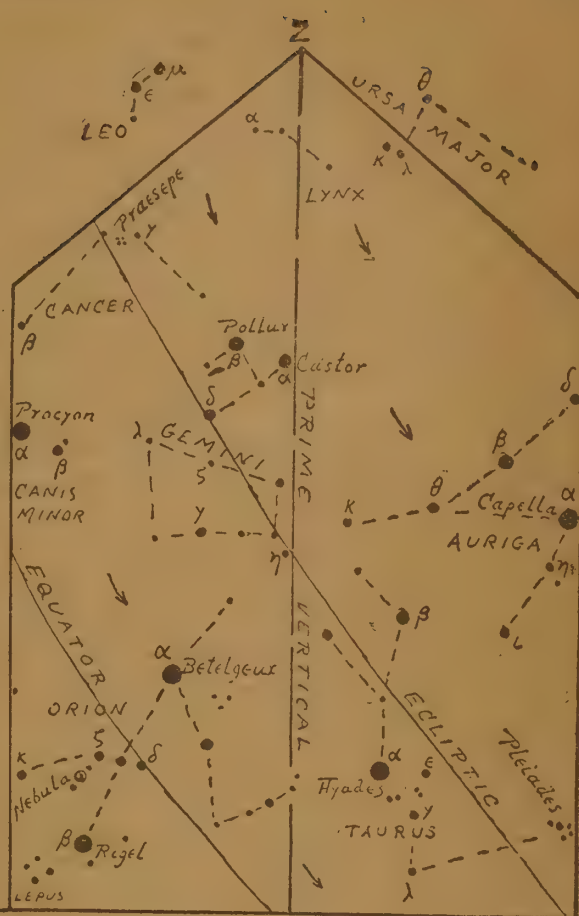
SOUTHERN CONSTELLATIONS

8.30 p. m. April 15.

9.30 p. m. April 1.

10.30 p. m. March 15.

The familiar Sickle in the Lion is due south, with its chief star, Regulus, sometimes also known as Cor Leonis, on the meridian. Leo Minor is above it on the left, and a few stars of the Lynx on the right. Below the latter, and further west, is Cancer, underneath which begins the wide extended trail of Hydra, stretching obliquely downward to the southeastern horizon. Above Hydra are the Sextant, nearly due south, and the Cup further east. If southern skies are clear, low down on the meridian may be espied Antlia, and perhaps even Vela, with Malus further toward the west. Jupiter is among the stars of Virgo, and crosses the meridian, or souths, about half-past ten, p. m. on April 15, and four minutes earlier each day following.



WESTERN CONSTELLATIONS

8.30 p. m. April 15.

9.30 p. m. April 1.

10.30 p. m. March 15.

Somewhat down from the zenith toward the west horizon is the Lynx, with Leo on its left and the Great Bear on its right. From Leo downward obliquely to the west-northwest horizon, the zodiacal constellations are well seen—Cancer, Gemini, with Castor due west, and the slightly brighter Pollux just south of it; also Taurus lower down, with Aldebaran in the Hyades, and the Pleiades leisurely sinking. In the southwest are all the brilliant stars of Orion, with the blazing Sirius brightest of all the stars, further around to the south and forming a vast triangle with Rigel and Betelgeuse. Above all is Procyon, and beneath Orion is the Hare, slowly disappearing. Through April, May and June evenings, Venus is the brilliant glory of the sky, setting from one to two hours after the sun. From about April 5 to 20, Mercury may be seen in the northwest from night to night, below and north of the Pleiades, and twinkling violently.

To CLEAN BRASS—Rotten stone 2 oz., oxalic acid $\frac{1}{2}$ oz., sweet oil $\frac{3}{4}$ of an oz., turpentine enough to make a paste. Apply with a little water.

Why and How It Rains.

(From Bulletin D, Weather Bureau.)

The theories of rainfall given in the books of twenty or thirty years ago are not now wholly accepted. There is one very simple principle, however, upon which no disagreement exists—that in order to produce abundant rain the temperature must be suddenly cooled below the dew-point. When the air is thus cooled, a portion of the water-vapor which is always present within it is changed to the liquid state, and that which formerly existed as a gas or vapor, now becomes visible in the form of minute particles of fog or mist. The particles thus formed may float away with wind or they may increase in size, coalesce, and fall to the ground of their own weight. Whether the condensation of vapor thus outlined results simply in cloud, or whether rain falls, depends on the magnitude of the temperature changes that take place in the air mass whose vapor is being condensed. A rise in temperature is inimical to further condensation; a fall is favorable to precipitation.

The precise manner in which the air is cooled sufficiently to produce rain, whether by contact or by mixing, is not clearly apprehended. Cooling by expansion as air ascends is one of the most effective causes of rainfall. The ascensional movement of air is brought about in several ways, chief of which are: (1) The air may be forced up the side of a mountain into a region of diminished pressure and lower temperature, as happens whenever a mountain range runs in a direction at right angles to the prevailing winds; (2) in the warm season, the lower layers of the atmosphere, under the effect of solar radiation, and probably other causes, frequently reach a state of unstable equilibrium, thus inducing ascensional currents—summer thunder storms are largely a result of this process; (3) last, and doubtless most important of all, is the circulation of air in cyclonic storms—a radial inflow from all sides and an ascensional movement in the center. A very large percentage of the rain of the United States is precipitated in connection with the passage of storms of the latter class.

The conditions which affect or control the rainfall may be divided into two classes, permanent and variable. The permanent conditions which contribute to an abundant rainfall are chiefly: (1) Nearness to the ocean or other large body of water; (2) a location within or near the track of cyclonic storms; (3) mountain ranges, particularly those running in a direction at right angles to the direction of the rain-bearing winds. These conditions may operate singly or in combination. Condition 1 alone is not always effective in producing rainfall, as witness the South Pacific coast; likewise, condition 2 alone is not so effective in the interior of the continent, far removed from an abundant supply of vapor, as in coastal regions. Montana and North Dakota, while lying directly within one of the great storm paths, are too far removed from the ocean to receive abundant rainfall, although other conditions are favorable. The rainfall of the North Pacific coast is an example of the combined effect of all three conditions.

The permanent conditions unfavorable to rainfall are chiefly those of geographic position, whether (a) on the leeward side of a mountain range running in a direction at right angles or nearly so to the prevail-

Better a fair certainty of a good living than a chance of getting rich.

DAY OF YEAR.		DAY OF MONTH.		DAY OF WEEK.		LATITUDE				LATITUDE				LATITUDE				LATITUDE				LATITUDE			
OF MONTREAL: Up. Mich. Wis. Minn. Dak. Idaho, Mon. and Wash.						OF BOSTON: N. England, New York State, Lower Mich. Wis. Iowa, Wyom- ing and Oregon.				OF N. YORK CITY: Phila- delphia, Conn., N. Jer- sey, Pa., Ohio, Indiana, Ill., Neb., and N. Cal.				OF WASHINGTON: Md., Va., Ky., Mo., Kas., Col., Utah and Cal.				OF CHARLESTON: N. Car- olina, Georgia, Ala., Miss., Ark., N. Mexico, Arizona, So. Cal.				OF NEW ORLEANS: Florida, Louisi'a, Tex., Mex., and Lower Cal.			
Sun rises.	Sun sets.	Sun rises.	Sun sets.	Sun rises.	Sun sets.	Sun rises.	Sun sets.	H. M.	Sun rises.	Sun sets.	Sun rises.	Sun sets.	Sun rises.	Sun sets.	Sun rises.	Sun sets.	Sun rises.	Sun sets.	Sun rises.	Sun sets.	Sun rises.	Sun sets.	Sun rises.	Sun sets.	
H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	
91	5 39	6 29	3 9	3 9	6 35	5 42	6 26	3 1	6 35	5 43	6 25	12 56	3 0	5 44	6 24	2 52	5 48	6 20	2 37	2 54	5 49	6 19	2 34	3 8	
92	5 37	6 30	3 35	3 29	7 29	5 40	6 27	3 29	7 29	5 41	6 26	3 25	3 54	5 43	6 25	3 22	5 46	6 21	3 11	3 46	5 48	6 20	3 8	8	
93	5 36	6 32	3 55	3 51	8 21	5 39	6 28	3 51	8 21	5 40	6 27	3 49	4 48	5 41	6 26	3 47	5 45	6 22	3 41	4 35	5 47	6 20	3 40	8	
94	5 34	6 33	4 12	4 11	9 11	5 37	6 30	4 11	9 11	5 38	6 28	4 10	5 37	5 40	6 27	4 9	5 44	6 22	4 7	5 18	5 46	6 21	4 8	4	
95	5 32	6 34	4 37	4 48	9 58	5 35	6 31	4 48	9 58	5 36	6 29	4 38	6 23	5 38	6 28	4 38	5 42	6 23	4 40	6 0	5 44	6 21	4 42	4	
96	5 30	6 35	4 58	5 10	10 44	5 33	6 32	5 10	10 44	5 35	6 30	4 58	7 9	5 37	6 29	4 58	5 41	6 24	4 58	6 41	5 43	6 22	4 42	4	
97	5 28	6 36	5 11	5 22	11 29	5 32	6 33	5 22	11 29	5 33	6 31	5 29	7 53	5 35	6 30	5 29	5 40	6 25	5 29	7 24	5 42	6 23	4 42	4	
98	5 27	6 38	5 32	5 43	ev. 14	5 30	6 34	5 32	ev. 14	5 32	6 32	5 32	8 38	5 34	6 31	5 12	5 39	6 25	7 42	8 8	5 41	6 23	4 42	4	
99	5 25	6 39	5 53	6 04	1 1	5 28	6 35	6 04	1 1	5 30	6 33	5 32	9 24	5 32	6 32	10 26	5 37	6 26	8 53	8 8	5 41	6 23	4 42	4	
100	5 23	6 40	6 15	6 26	1 50	5 27	6 36	6 26	1 50	5 28	6 34	5 30	10 13	5 30	6 33	11 34	5 36	6 27	11 13	9 43	5 39	6 24	4 42	4	
101	5 21	6 41	6 36	6 47	2 44	5 25	6 37	6 47	2 44	5 27	6 36	6 30	11 9	5 29	6 34	12 30	5 35	6 27	12 30	10 44	5 38	6 24	4 42	4	
102	5 19	6 43	6 57	7 08	3 42	5 23	6 38	7 08	3 42	5 25	6 37	6 30	12 15	5 27	6 33	1 34	5 32	6 28	1 34	11 40	5 36	6 25	4 42	4	
103	5 18	6 44	7 18	7 29	4 46	5 22	6 40	7 29	4 46	5 24	6 38	7 29	1 34	5 26	6 35	1 22	5 32	6 29	1 22	11 40	5 36	6 26	4 42	4	
104	5 16	6 44	7 39	7 50	5 54	5 20	6 41	7 50	5 54	5 22	6 39	7 50	2 30	5 24	6 36	2 0	5 31	6 29	2 0	11 40	5 34	6 27	4 42	4	
105	5 14	6 47	7 59	8 10	6 52	5 19	6 42	8 10	6 52	5 21	6 40	8 11	3 26	5 23	6 37	2 33	5 30	6 30	2 33	11 40	5 33	6 27	4 42	4	
106	5 12	6 48	8 19	8 30	7 51	5 17	6 43	8 30	7 51	5 20	6 39	8 31	4 22	5 22	6 38	2 58	5 29	6 31	2 51	11 40	5 32	6 28	4 42	4	
107	5 10	6 49	8 39	8 50	8 59	5 16	6 44	8 50	8 59	5 18	6 42	8 51	5 30	5 20	6 39	3 21	5 28	6 32	3 19	11 40	5 31	6 29	4 42	4	
108	5 9	6 51	8 59	9 10	9 48	5 15	6 45	9 10	9 48	5 16	6 43	9 11	6 36	5 19	6 41	4 12	5 26	6 33	4 19	12 30	5 30	6 29	4 42	4	
109	5 7	6 52	9 19	9 30	10 34	5 12	6 46	9 30	10 34	5 15	6 44	9 31	7 16	5 17	6 42	4 38	5 24	6 34	4 49	12 30	5 29	6 30	4 42	4	
110	5 5	6 53	9 39	9 50	11 15	5 11	6 47	9 50	11 15	5 13	6 45	4 35	7 55	5 16	6 42	4 38	5 24	6 34	4 49	12 30	5 27	6 30	4 42	4	
111	5 3	6 54	9 59	10 10	11 55	5 9	6 48	10 10	11 55	5 12	6 46	4 35	8 32	5 15	6 43	4 38	5 23	6 35	4 49	12 30	5 26	6 31	4 42	4	
112	5 2	6 55	10 19	10 30	12 30	5 8	6 50	10 30	12 30	5 10	6 47	4 35	9 3	5 13	6 44	4 38	5 22	6 35	4 58	12 30	5 25	6 32	4 42	4	
113	5 0	6 57	10 29	10 40	1 34	5 6	6 51	10 40	1 34	5 13	6 48	4 35	9 37	5 12	6 45	4 38	5 21	6 36	5 10	12 30	5 24	6 32	4 42	4	
114	4 59	6 58	10 39	10 50	2 30	5 5	6 52	10 50	2 30	5 8	6 49	4 35	10 11	5 11	6 46	4 38	5 20	6 36	5 10	12 30	5 23	6 33	4 42	4	
115	4 57	6 59	10 49	11 00	3 26	5 3	6 53	11 00	3 26	5 6	6 50	4 35	10 46	5 9	6 47	4 35	5 19	6 37	5 10	12 30	5 22	6 34	4 42	4	
116	4 55	7 0	10 59	11 10	4 22	5 0	6 54	11 10	4 22	5 3	6 51	4 35	11 25	5 8	6 48	4 35	5 18	6 38	5 10	12 30	5 22	6 34	4 42	4	
117	4 54	7 1	11 09	11 20	5 18	5 0	6 55	11 20	5 18	5 3	6 52	4 35	11 25	5 8	6 48	4 35	5 17	6 39	5 10	12 30	5 21	6 35	4 42	4	
118	4 52	7 2	11 19	11 30	6 04	5 0	6 56	11 30	6 04	5 3	6 53	4 35	11 25	5 8	6 48	4 35	5 16	6 40	5 10	12 30	5 20	6 35	4 42	4	
119	4 51	7 3	11 29	11 40	6 54	5 0	6 57	11 40	6 54	5 3	6 54	4 35	11 25	5 8	6 48	4 35	5 15	6 41	5 10	12 30	5 19	6 36	4 42	4	
120	4 49	7 4	11 39	11 50	7 44	5 0	6 59	11 50	7 44	5 3	6 55	4 35	11 25	5 8	6 48	4 35	5 14	6 41	5 10	12 30	5 18	6 36	4 42	4	
ST. PAUL.	D. H. M.	6 4 20	E. 13 9 28	M. 13 9 28	E. 20 5 21	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	
CHICAGO.	D. H. M.	6 4 20	E. 13 9 28	M. 13 9 28	E. 20 5 21	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	
ST. LOUIS.	D. H. M.	6 4 20	E. 13 9 28	M. 13 9 28	E. 20 5 21	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	E. 28 9 5	
MOON'S PHASES.		FULL MOON...		LAST QUARTER...		NEW MOON...		FIRST QUARTER...		FULL MOON...		LAST QUARTER...		NEW MOON...		FIRST QUARTER...		FULL MOON...		LAST QUARTER...		NEW MOON...		FIRST QUARTER...	
91	Fr	92	Sa	93	Mo	94	Tu	95	We	96	Th	97	Fr	98	Sa	99	Mo	100	Tu	101	We	102	Th	103	Fr
104	Sa	105	Mo	106	Tu	107	We	108	Th	109	Fr	110	Sa	111	Mo	112	Tu	113	We	114	Th	115	Fr	116	Sa
117	Mo	118	Tu	119	We	120	Th	121	Fr	122	Sa	123	Mo	124	Tu	125	We	126	Th	127	Fr	128	Sa	129	Mo

ing winds; (b) at a considerable distance from the average track of barometric depressions; or (c) remoteness from the ocean.

The variable conditions which influence rainfall are the concomitant changes of pressure, temperature and wind movement. In general, the two classes of conditions which influence precipitation are so blended that it is difficult to assign a quantitative value to the effect of each. We may say in general the rainfall of any given place will range between limits previously ascertained by observation, but the character of the fall, whether light or heavy, depends as before stated on the daily changes of pressure, temperature, etc, which in the present state of knowledge cannot be foreseen except for a short time in advance.

The Summer Rainfall of 1897.

The departure chart (Page 32) shows that the season for April 1 to September 30, '97, as a whole must be classed as one of deficient rainfall. The heavy rains of July in Minnesota, northern Wisconsin and New England, served to swell the seasonal fall in those regions to amounts considerably greater than adjoining localities received.

It will be remembered that a severe drouth set in about the end of August over the central valleys and southwest, and that the rainfall for the entire month of September was generally below the normal. This fact partially accounts for the general deficiency of rain in almost all of the principal agricultural regions. The seasonal rainfall of parts of Wisconsin and Minnesota, and all of New England, was above the average but badly distributed, the heavy rains of July being especially detrimental to farming interests. The rainfall of the Washington and Idaho wheat region was above the average and well distributed. There was also an excess of rain over a rather extensive tract in the arid regions of the southwest, and the excess gradually shaded off to normal rainfall over the plains east of the Rocky mountains. The rainfall of western Kansas and thence southward to the Mexican boundary was about normal.

A comparison of the chart of actual rainfall (Page 28) from April 1 to September 30, compared with normal conditions for that period (chart on Page 36), suggests that departures from normal have not the same significance in regions of normally light and heavy fall, respectively. Thus, it will be seen that generally throughout the agricultural regions of the central valleys, the seasonal rainfall was above 15 inches, save in northern Illinois and Indiana and portions of southwestern Tennessee, northern Mississippi and Alabama.

In these regions, however, the fall was very close to 15 inches, so that, on the whole, the rainfall of the crop season averaged about 15 inches, which is the amount provisionally adopted in Bulletin D as being sufficient for the growth and maturity of staple crops. Regions whose normal rainfall is above 15 inches may, therefore, suffer drouth which may be severe in proportion as the mean seasonal fall of the region is light or heavy. Thus, in Florida, where the seasonal fall is upwards of 35 inches, a severe drouth may prevail without injurious results, provided what rain falls is well distributed. It is quite evident that the normal rainfall of a very considerable area in the corn and wheat regions of the west is more than is required for the successful cultivation of those cereals. On the other hand, if only 15 inches are available, this amount should be evenly distributed throughout the growing season, in order to produce the best results. See charts on Pages 34 and 40.

5th MONTH.

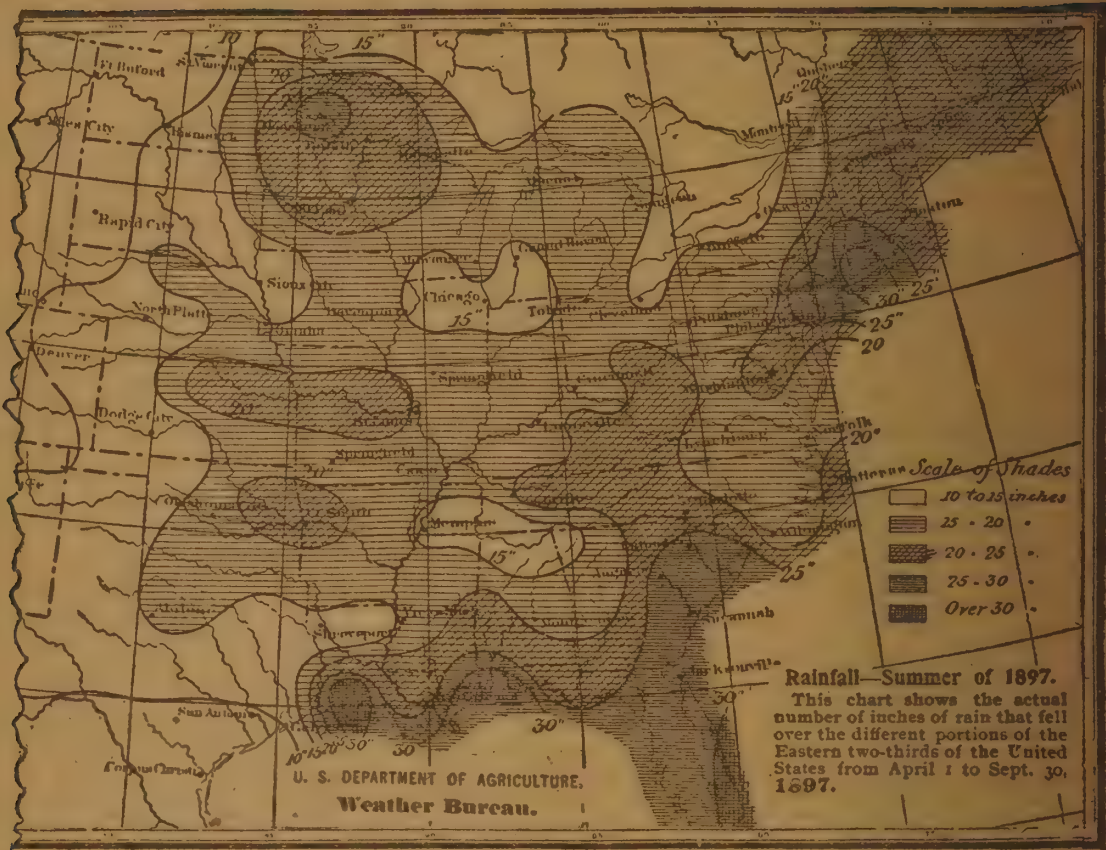
18

DAY.

98

31 DAYS

Day of Month	Day of Week	LATITUDE OF MONTREAL: Up. Mich. Wis. Minn. Dak. Idaho, Mon. and Wash.			LATITUDE OF BOSTON: N. England, New York State, Lower Mich. Wis. Iowa, Wyoming and Oregon.			LATITUDE OF N. YORK CITY: Philadelphia, Conn., N. Jersey, Pa., Ohio, Indiana, Ill., Neb., and N. Cal.			LATITUDE OF WASHINGTON: Md., Va., Ky., Mo., Kas., Col., Utah and Cal.			LATITUDE OF CHARLESTON: N. Carolina, Georgia, Ala., Miss., Ark., N. Mexico, Arizona, So. Cal.			LATITUDE OF NEW ORLEANS: Florida, Louis'a, Tex., Mex., and Lower Cal.		
		Sun rises	Sun sets	Moon sets	Sun rises	Sun sets	Moon sets	Sun rises	Sun sets	Moon sets	Sun rises	Sun sets	Moon sets	Sun rises	Sun sets	Moon sets	Sun rises	Sun sets	Moon sets
1	S	4 48	7 7	2 15	4 55	6 59	2 13	4 58	6 56	2 12	5 2	6 52	2 10	5 13	6 42	2 4	5 17	6 37	2 6
2	Mo	4 46	7 8	2 35	4 53	7 1	2 35	4 57	6 57	2 35	5 1	6 53	2 35	5 12	6 42	2 35	5 16	6 38	2 37
3	Tu	4 45	7 10	2 58	4 52	7 2	3 0	4 56	6 58	3 2	4 56	6 54	3 3	5 11	6 43	3 6	5 15	6 38	3 10
4	We	4 43	7 11	3 18	4 51	7 3	3 23	4 54	6 59	3 26	4 56	6 55	3 28	5 10	6 44	3 37	5 14	6 39	3 44
5	Th	4 42	7 12	3 44	4 49	7 4	3 52	4 53	7 0	3 56	4 57	6 56	4 0	5 9	6 45	4 12	5 13	6 40	4 20
6	Fr	4 41	7 13	4 13	4 48	7 5	4 21	4 52	7 2	4 25	4 56	6 57	4 18	5 8	6 45	4 18	5 12	6 40	4 49
7	Sa	4 39	7 14	4 42	4 47	7 6	4 50	4 51	7 3	4 54	4 55	6 58	4 51	5 7	6 46	4 57	5 11	6 41	8 49
8	S	4 38	7 16	5 10	4 46	7 7	5 19	4 50	7 4	5 19	4 54	6 59	5 18	5 6	6 47	5 10	5 11	6 42	9 54
9	Mo	4 36	7 17	5 39	4 45	7 8	5 48	4 49	7 5	5 48	4 53	7 0	5 17	5 5	6 47	5 10	5 10	6 42	10 50
10	Tu	4 35	7 18	6 08	4 43	7 9	6 17	4 47	7 6	6 17	4 52	7 1	5 46	5 4	6 48	5 10	5 10	6 43	11 39
11	We	4 34	7 19	6 37	4 42	7 10	6 46	4 46	7 7	6 46	4 51	7 2	5 45	5 3	6 49	5 9	5 9	6 44	12 30
12	Th	4 33	7 20	7 06	4 41	7 12	7 15	4 45	7 8	7 15	4 50	7 3	5 44	5 2	6 50	5 8	5 8	6 44	0 19
13	Fr	4 31	7 22	7 35	4 40	7 13	7 44	4 44	7 9	7 44	4 49	7 4	5 43	5 1	6 51	5 7	5 7	6 45	0 53
14	Sa	4 30	7 23	8 04	4 39	7 14	8 13	4 43	7 10	8 13	4 48	7 5	5 42	5 1	6 52	5 6	5 6	6 46	1 24
15	S	4 29	7 24	8 33	4 38	7 15	8 42	4 42	7 11	8 42	4 47	7 6	5 41	5 1	6 53	5 5	5 5	6 47	2 27
16	Mo	4 28	7 25	9 02	4 37	7 16	9 11	4 42	7 12	9 11	4 46	7 7	5 40	5 0	6 54	5 4	5 4	6 47	3 30
17	Tu	4 27	7 26	9 31	4 36	7 17	9 40	4 41	7 13	9 40	4 45	7 8	5 39	4 59	6 54	5 3	5 3	6 48	4 37
18	We	4 26	7 27	10 00	4 35	7 18	10 09	4 40	7 14	10 09	4 44	7 9	5 38	4 58	6 55	5 2	5 2	6 49	5 40
19	Th	4 25	7 28	10 29	4 34	7 19	10 38	4 39	7 15	10 38	4 43	7 10	5 37	4 58	6 56	5 1	5 1	6 49	6 43
20	Fr	4 24	7 29	10 58	4 33	7 20	11 07	4 38	7 16	11 07	4 42	7 11	5 36	4 57	6 57	5 0	5 0	6 50	7 46
21	Sa	4 23	7 30	11 27	4 32	7 21	11 36	4 37	7 17	11 36	4 41	7 12	5 35	4 56	6 58	4 59	5 3	6 51	8 49
22	S	4 22	7 31	11 56	4 31	7 22	12 05	4 36	7 18	12 05	4 40	7 13	5 34	4 55	6 59	4 58	5 2	6 52	9 52
23	Mo	4 21	7 32	12 25	4 30	7 23	12 34	4 35	7 19	12 34	4 40	7 14	5 33	4 54	7 0	4 57	5 1	6 53	10 55
24	Tu	4 20	7 33	12 54	4 29	7 24	13 03	4 34	7 20	13 03	4 40	7 15	5 32	4 53	7 1	4 56	5 0	6 54	11 58
25	We	4 19	7 34	13 23	4 28	7 25	13 32	4 33	7 21	13 32	4 40	7 16	5 31	4 52	7 2	4 55	4 59	6 55	12 59
26	Th	4 18	7 35	13 52	4 27	7 26	14 01	4 32	7 22	14 01	4 40	7 17	5 30	4 51	7 3	4 54	4 58	6 56	14 00
27	Fr	4 17	7 36	14 21	4 26	7 27	14 30	4 31	7 23	14 30	4 40	7 18	5 29	4 50	7 4	4 53	4 57	6 57	15 01
28	Sa	4 16	7 37	14 50	4 25	7 28	14 59	4 30	7 24	14 59	4 40	7 19	5 28	4 49	7 5	4 52	4 56	6 58	16 02
29	S	4 15	7 38	15 19	4 24	7 29	15 28	4 29	7 25	15 28	4 40	7 20	5 27	4 48	7 6	4 51	4 55	6 59	17 03
30	Mo	4 14	7 39	15 48	4 23	7 30	15 57	4 28	7 26	15 57	4 40	7 21	5 26	4 47	7 7	4 50	4 54	7 00	18 04
31	Tu	4 13	7 40	16 17	4 22	7 31	16 26	4 27	7 27	16 26	4 40	7 22	5 25	4 46	7 8	4 49	4 53	7 01	19 05



Prof. Herschell's Weather Predictions.

Time of New or Full Moon, or of entering the First or Last Quarter.	Weather likely to follow during the Quarter.	
	In Summer.	In Winter.
12 Noon to 2 Afternoon.....	Very rainy.	Snow or Rain.
2 Afr. to 4 ".....	Changeable.	Fair and Mild.
4 " to 6 ".....	Fair.	Fair.
6 " to 10 ".....	Fair, if wind northw'st	Fair, frosty, if n. or n. e.
10 " to 12 Midnight.....	Rainy, if south or s.w.	Rain or Snow, if s. or s.w.
12 Mid. to 2 Morning.....	Fair.	Fair and Frosty.
2 Mor. to 4 ".....	Fair.	Hard Frost, unless s. or w.
4 " to 6 ".....	Cold, with showers.	Snow and Stormy.
6 " to 8 ".....	Rain.	Snow and Stormy.
8 " to 10 ".....	Wind and Rain.	Stormy.
10 " to 12 Noon.....	Changeable.	Cold Rain, if wind west.
	Frequent Showers.	Snow, if east.
		Cold, with high wind.

Observations.—1. The nearer the time of the moon's change, first quarter, full and last quarter are to midnight, the fairer will be the weather during the next seven days. 2. The space for this calculation occupies from 10 at night till 2 next morning. 3. The nearer to midday or noon the phases of the moon happens, the more foul or wet weather may be expected during the next seven days. 4. The space for this calculation occupies from 10 in the forenoon to 2 in the afternoon. These observations refer principally to the summer, though they affect spring and autumn nearly in the same ratio. 5. The moon's change, first quarter, full and last quarter, happening during six of the afternoon hours, i. e., from 4 to 10, may be followed by fair weather, but this is mostly dependent on the wind, as is noted in the table. 6. Though the weather, from a variety of irregular causes, is more uncertain in the latter part of autumn, the whole of winter and the beginning of spring, yet in the main the above observations will apply to those periods also. 7. To prognosticate correctly where the wind is concerned, a vane should be in sight.

Men and melons are hard to know.

6th MONTH.

18

JUNE.

98

30 DAYS

DAY OF YEAR.	DAY OF MONTH.	DAY OF WEEK.	LATITUDE			LATITUDE			LATITUDE			LATITUDE			LATITUDE			LATITUDE			LATITUDE			LATITUDE			LATITUDE		
			Sun rises.	Moon sets.	H. M.	Sun rises.	Moon sets.	H. M.	Sun rises.	Moon sets.	H. M.	Sun rises.	Moon sets.	H. M.	Sun rises.	Moon sets.	H. M.	Sun rises.	Moon sets.	H. M.	Sun rises.	Moon sets.	H. M.	Sun rises.	Moon sets.	H. M.	Sun rises.	Moon sets.	H. M.
152	1	We	4 15	7 41	1 42	4 25	7 30	1 48	4 25	7 30	1 48	4 25	7 30	1 48	4 25	7 30	1 48	4 25	7 30	1 48	4 25	7 30	1 48	4 25	7 30	1 48	4 25	7 30	1 48
153	2	Th	4 14	7 41	1 42	4 25	7 30	1 48	4 25	7 30	1 48	4 25	7 30	1 48	4 25	7 30	1 48	4 25	7 30	1 48	4 25	7 30	1 48	4 25	7 30	1 48	4 25	7 30	1 48
154	3	Fr	4 14	7 42	2 50	4 25	7 32	3 1	4 25	7 32	3 1	4 25	7 32	3 1	4 25	7 32	3 1	4 25	7 32	3 1	4 25	7 32	3 1	4 25	7 32	3 1	4 25	7 32	3 1
155	4	Sa	4 13	7 43	rises	4 24	7 32	rises	4 24	7 32	rises	4 24	7 32	rises	4 24	7 32	rises	4 24	7 32	rises	4 24	7 32	rises	4 24	7 32	rises	4 24	7 32	rises
156	5	Mo	4 13	7 44	9 27	4 24	7 33	9 16	4 24	7 33	9 16	4 24	7 33	9 16	4 24	7 33	9 16	4 24	7 33	9 16	4 24	7 33	9 16	4 24	7 33	9 16	4 24	7 33	9 16
157	6	Tu	4 13	7 45	10 13	4 23	7 34	10 4	4 23	7 34	10 4	4 23	7 34	10 4	4 23	7 34	10 4	4 23	7 34	10 4	4 23	7 34	10 4	4 23	7 34	10 4	4 23	7 34	10 4
158	7	We	4 12	7 45	10 48	4 23	7 34	10 40	4 23	7 34	10 40	4 23	7 34	10 40	4 23	7 34	10 40	4 23	7 34	10 40	4 23	7 34	10 40	4 23	7 34	10 40	4 23	7 34	10 40
159	8	Th	4 12	7 46	11 15	4 23	7 35	11 11	4 23	7 35	11 11	4 23	7 35	11 11	4 23	7 35	11 11	4 23	7 35	11 11	4 23	7 35	11 11	4 23	7 35	11 11	4 23	7 35	11 11
160	9	Fr	4 12	7 47	11 35	4 23	7 35	11 33	4 23	7 35	11 33	4 23	7 35	11 33	4 23	7 35	11 33	4 23	7 35	11 33	4 23	7 35	11 33	4 23	7 35	11 33	4 23	7 35	11 33
161	10	Sa	4 12	7 47	11 56	4 23	7 36	11 56	4 23	7 36	11 56	4 23	7 36	11 56	4 23	7 36	11 56	4 23	7 36	11 56	4 23	7 36	11 56	4 23	7 36	11 56	4 23	7 36	11 56
162	11	Mo	4 11	7 48	morn	4 22	7 36	morn	4 22	7 36	morn	4 22	7 36	morn	4 22	7 36	morn	4 22	7 36	morn	4 22	7 36	morn	4 22	7 36	morn	4 22	7 36	morn
163	12	Tu	4 11	7 48	0 18	4 22	7 37	0 18	4 22	7 37	0 18	4 22	7 37	0 18	4 22	7 37	0 18	4 22	7 37	0 18	4 22	7 37	0 18	4 22	7 37	0 18	4 22	7 37	0 18
164	13	We	4 11	7 49	0 37	4 22	7 38	0 41	4 22	7 38	0 41	4 22	7 38	0 41	4 22	7 38	0 41	4 22	7 38	0 41	4 22	7 38	0 41	4 22	7 38	0 41	4 22	7 38	0 41
165	14	Th	4 11	7 49	0 57	4 22	7 38	1 4	4 22	7 38	1 4	4 22	7 38	1 4	4 22	7 38	1 4	4 22	7 38	1 4	4 22	7 38	1 4	4 22	7 38	1 4	4 22	7 38	1 4
166	15	Fr	4 11	7 49	1 25	4 22	7 38	1 34	4 22	7 38	1 34	4 22	7 38	1 34	4 22	7 38	1 34	4 22	7 38	1 34	4 22	7 38	1 34	4 22	7 38	1 34	4 22	7 38	1 34
167	16	Sa	4 11	7 50	1 57	4 22	7 38	2 8	4 22	7 38	2 8	4 22	7 38	2 8	4 22	7 38	2 8	4 22	7 38	2 8	4 22	7 38	2 8	4 22	7 38	2 8	4 22	7 38	2 8
168	17	Mo	4 11	7 51	3 22	4 23	7 39	2 49	4 23	7 39	2 49	4 23	7 39	2 49	4 23	7 39	2 49	4 23	7 39	2 49	4 23	7 39	2 49	4 23	7 39	2 49	4 23	7 39	2 49
169	18	Tu	4 11	7 51	3 22	4 23	7 39	3 34	4 23	7 39	3 34	4 23	7 39	3 34	4 23	7 39	3 34	4 23	7 39	3 34	4 23	7 39	3 34	4 23	7 39	3 34	4 23	7 39	3 34
170	19	We	4 11	7 51	sets	4 23	7 40	sets	4 23	7 40	sets	4 23	7 40	sets	4 23	7 40	sets	4 23	7 40	sets	4 23	7 40	sets	4 23	7 40	sets	4 23	7 40	sets
171	20	Th	4 11	7 51	9 11	4 23	7 40	9 11	4 23	7 40	9 11	4 23	7 40	9 11	4 23	7 40	9 11	4 23	7 40	9 11	4 23	7 40	9 11	4 23	7 40	9 11	4 23	7 40	9 11
172	21	Fr	4 11	7 51	9 40	4 23	7 40	9 33	4 23	7 40	9 33	4 23	7 40	9 33	4 23	7 40	9 33	4 23	7 40	9 33	4 23	7 40	9 33	4 23	7 40	9 33	4 23	7 40	9 33
173	22	Sa	4 12	7 52	10 5	4 23	7 40	10 5	4 23	7 40	10 5	4 23	7 40	10 5	4 23	7 40	10 5	4 23	7 40	10 5	4 23	7 40	10 5	4 23	7 40	10 5	4 23	7 40	10 5
174	23	Mo	4 12	7 52	10 26	4 24	7 40	10 26	4 24	7 40	10 26	4 24	7 40	10 26	4 24	7 40	10 26	4 24	7 40	10 26	4 24	7 40	10 26	4 24	7 40	10 26	4 24	7 40	10 26
175	24	Tu	4 12	7 52	10 42	4 24	7 40	10 42	4 24	7 40	10 42	4 24	7 40	10 42	4 24	7 40	10 42	4 24	7 40	10 42	4 24	7 40	10 42	4 24	7 40	10 42	4 24	7 40	10 42
176	25	We	4 12	7 52	11 7	4 24	7 40	11 7	4 24	7 40	11 7	4 24	7 40	11 7	4 24	7 40	11 7	4 24	7 40	11 7	4 24	7 40	11 7	4 24	7 40	11 7	4 24	7 40	11 7
177	26	Th	4 12	7 52	11 24	4 25	7 40	11 24	4 25	7 40	11 24	4 25	7 40	11 24	4 25	7 40	11 24	4 25	7 40	11 24	4 25	7 40	11 24	4 25	7 40	11 24	4 25	7 40	11 24
178	27	Fr	4 13	7 52	11 44	4 25	7 40	11 44	4 25	7 40	11 44	4 25	7 40	11 44	4 25	7 40	11 44	4 25	7 40	11 44	4 25	7 40	11 44	4 25	7 40	11 44	4 25	7 40	11 44
179	28	Sa	4 13	7 52	11 52	4 25	7 40	11 52	4 25	7 40	11 52	4 25	7 40	11 52	4 25	7 40	11 52	4 25	7 40	11 52	4 25	7 40	11 52	4 25	7 40	11 52	4 25	7 40	11 52
180	29	Mo	4 14	7 52	12 08	4 26	7 40	12 08	4 26	7 40	12 08	4 26	7 40	12 08	4 26	7 40	12 08	4 26	7 40	12 08	4 26	7 40	12 08	4 26	7 40	12 08	4 26	7 40	12 08
181	30	Tu	4 14	7 52	0 42	4 26	7 40	0 42	4 26	7 40	0 42	4 26	7 40	0 42	4 26	7 40	0 42	4 26	7 40	0 42	4 26	7 40	0 42	4 26	7 40	0 42	4 26	7 40	0 42
182	31	We	4 15	7 52	0 42	4 26	7 40	0 42	4 26	7 40	0 42	4 26	7 40	0 42	4 26	7 40	0 42	4 26	7 40	0 42	4 26	7 40	0 42	4 26	7 40	0 42	4 26	7 40	0 42

MOON'S PHASES.

FULL MOON...
 LAST QUARTER...
 NEW MOON...
 FIRST QUARTER...

MONTREAL

BOSTON.

NEW YORK.

WASH'TON.

CHARL'TON.

N. ORLEANS.

CINCINNATI.

CHICAGO.

ST. PAUL.

ST. LOUIS.



NORTHERN CONSTELLATIONS

8.30 p. m. July 15.

9.30 p. m. July 1.

10.30 p. m. June 15.

Polaris is now a trifle east of true north. The Little Bear is above it, and resting on the tip of his tail. Still above are the coils of the Dragon, covering the Little Dipper as if a huge extinguisher. Boötes and Hercules are symmetrically placed round the zenith, the former west of it and the latter eastward from it. Well up in the north west is Ursa Major, as if standing on his nose, and below him the feebly marked Lynx. Underneath the pole star is the Camelopard with its few stars, and in the northeast on a level with Polaris, is Cepheus. Underneath it, the striking asterism of Cassiopeia is ascending from the horizon.

EASTERN CONSTELLATIONS

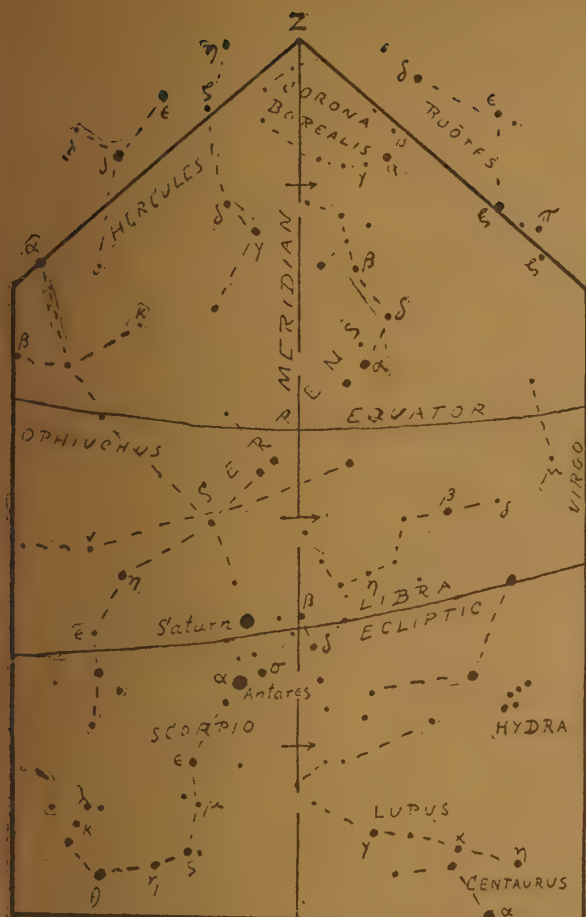
8.30 p. m. July 15.

9.30 p. m. July 1.

10.30 p. m. June 15.

Through the northward edge of Hercules runs the prime vertical, well up toward the zenith, and north of it are a few straggling stars of the Dragon. The Lyre and its brilliant Vega are ascending slowly zenithward. Beneath it, in order, to the east horizon are the inconspicuous constellations called the Little Fox and the Arrow, the Dolphin and the Horse. The grand form of Pegasus is rising north of east, and a few stars of Aquarius south of east. Above them and adjacent to the Arrow is the easily recognized asterism of the Eagle, with Altair as chief sun, and Beta and Gamma as two bright, but rather remote companions. Below Lyra and northward is the conspicuous area called the Swan, traversed by the Milky Way.

TO CLEAN BLANKETS—When soiled they should be washed, and not scoured. Shake the dust from them, plunge them into plenty of hot soap-suds, let them lie till the hands can be borne in the water, wash quickly, rinse in new, clean, hot suds, shake thoroughly, stretch well, dry, and they will be as nice as new.



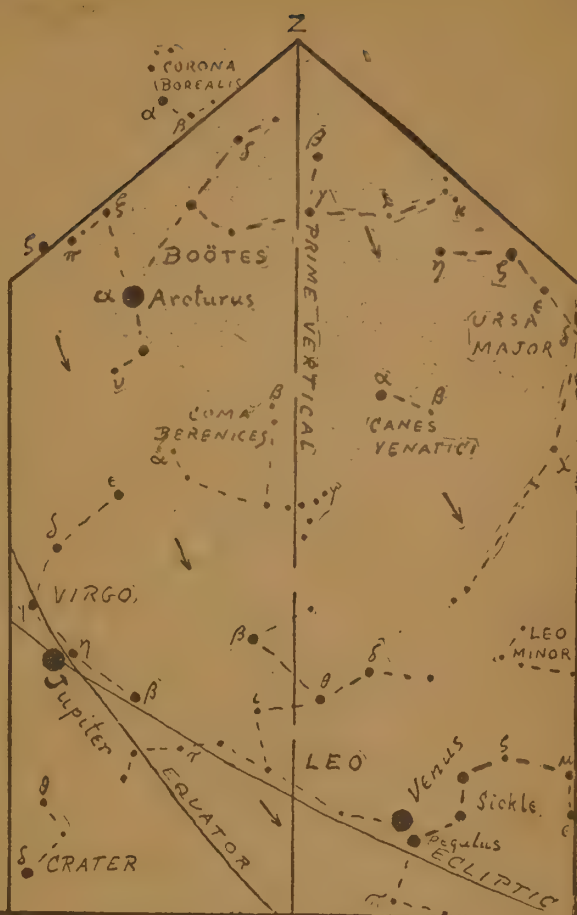
SOUTHERN CONSTELLATIONS

8.30 p. m. July 15.

9.30 p. m. July 1.

10.30 p. m. June 15.

Nearly overhead is the ring of the Northern Crown, with Hercules guarding it on the left and Boötes on the right. Beneath is the Serpent, trailing toward the east, and above it Ophiuchus, neither constellation being in any way brilliant. Lower down and almost up to the meridian is the striking Scorpion, with the red star Antares, or Cor Scorpion near its center. The dull and steady Saturn is just above. Westward from it is Libra; and still further and higher Virgo, with Spica its brightest star. In the southeast is Hydra, and below are the Wolf and the northernmost stars of the Centaur. A keen eye may just see Uranus on a clear, moonless July evening, near the meridian, exactly on the ecliptic, and somewhat west of a line joining the bright stars Beta and Delta Scorpion.



WESTERN CONSTELLATIONS

8.30 p. m. July 15.

9.30 p. m. July 1.

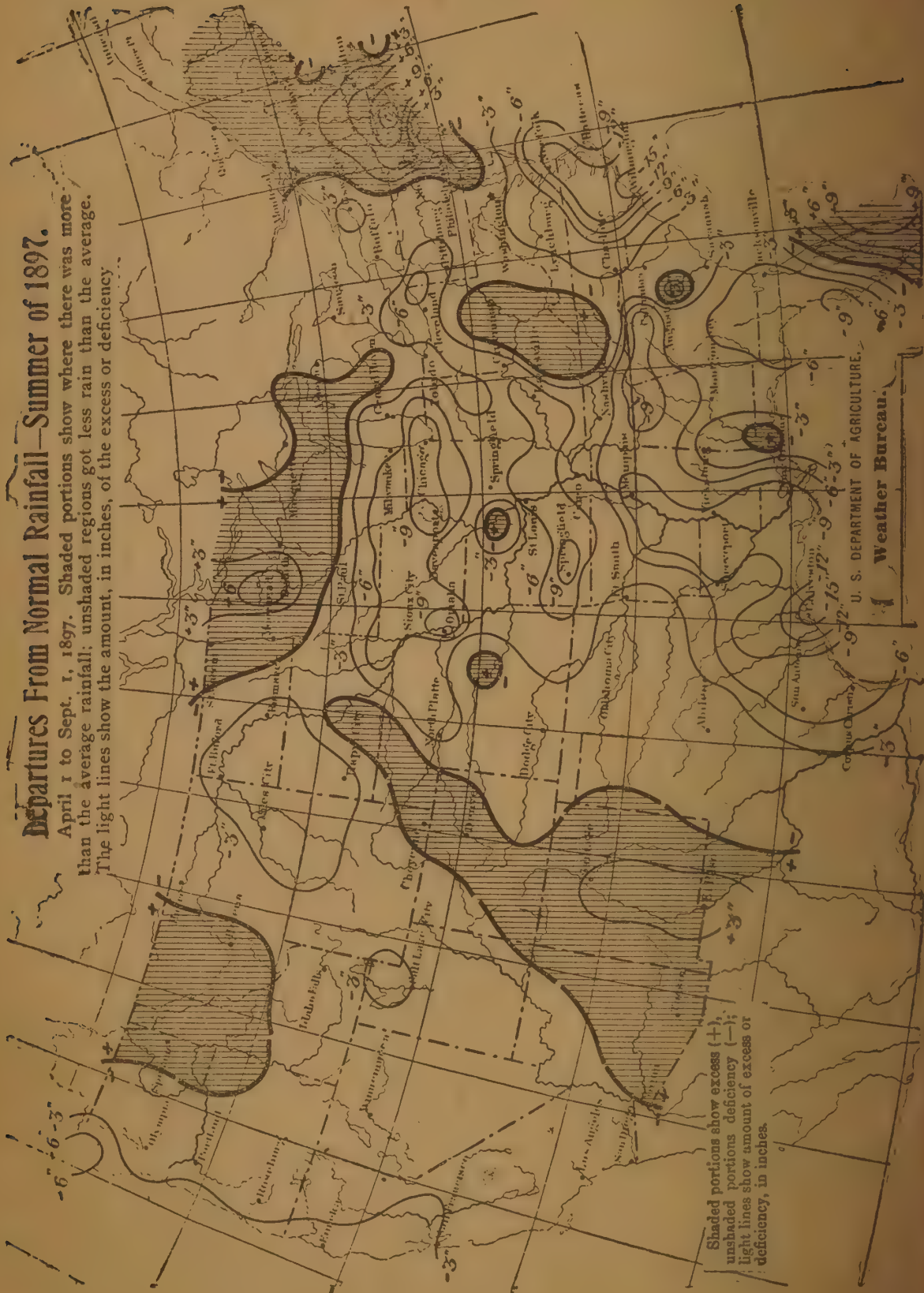
10.30 p. m. June 15.

High up in the sky and somewhat south of west is Arcturus, the blazing sun of Boötes; and on a level with it, though north of west, is the handle of the Dipper. Between the two and lower down are the Hunting Dogs and Berenice's Hair. Virgo contains also Jupiter, shining with a steady white light in the south west. South of it is Spica, and low down beneath is the small and inconspicuous Cup. Northward from Virgo, along the descending ecliptic, is the expanding form of the Lion, with the Sextant due west, and the Sickle north of it and cutting downward. Surmounting the Sickle is the Lesser Lion. Through July, August and September, Venus is the brilliant western star of early evening, setting about two hours later than the sun. From July 15 to August 20, Mercury is visible in the northwest after sunset.

BLUE-BLACK WRITING INK—The following is recommended as giving an excellent blue-black ink: Aleppo galls, bruised, 4½ ounces; bruised cloves, 1 drachm; cold water, 40 ounces; sulphate of iron, 1½ ounces; sulphuric acid, 35 minims; sulphate of indigo, in thin paste, ¼ ounce.

Departures From Normal Rainfall—Summer of 1897.

April 1 to Sept. 1, 1897. Shaded portions show where there was more than the average rainfall; unshaded regions got less rain than the average. The light lines show the amount, in inches, of the excess or deficiency.



Shaded portions show excess (+);
unshaded portions deficiency (-);
light lines show amount of excess or
deficiency, in inches.

U. S. DEPARTMENT OF AGRICULTURE,
Weather Bureau.

DAY OF YEAR.			DAY OF MONTH.			DAY OF WEEK.			SUN SLOW.			LATITUDE OF MONTREAL: Up. Mich. Wis. Minn. Dak. Idaho, Mon. and Wash.				LATITUDE OF BOSTON: N. England, New York State, Lower Mich. Wis. Iowa, Wyoming and Oregon.				LATITUDE OF N. YORK CITY: Philadelphia, Conn., N. Jersey, Pa., Ohio, Indiana, Ill., Neb., and N. Cal.				LATITUDE OF WASHINGTON: Md., Va., Ky., Mo., Kas., Col., Utah and Cal.				LATITUDE OF CHARLESTON: N. Carolina, Georgia, Ala., Miss., Ark., N. Mexico, Arizona, So. Cal.				LATITUDE OF NEW ORLEANS: Florida, Louis'a, Tex., Mex., and Lower Cal.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
Sun rises		Sun sets		Moon rises		Moon sets		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.	

MOON'S PHASES.				MONTREAL.		BOSTON.		NEW YORK.		WASH'TON.		CHARL'TON.		N. ORLEANS.		CINCINNATI.		CHICAGO.		ST. PAUL.		ST. LOUIS.	
				D. H. M.	D. H. M.	D. H. M.	D. H. M.	D. H. M.	D. H. M.	D. H. M.	D. H. M.	D. H. M.	D. H. M.	D. H. M.	D. H. M.	D. H. M.	D. H. M.	D. H. M.	D. H. M.	D. H. M.	D. H. M.	D. H. M.	
☾	FULL MOON...	3	4	12	E.	3	4	12	E.	3	4	12	E.	3	4	12	E.	3	3	12	E.	3	3
☾	LAST QUARTER...	10	11	43	M.	10	11	43	M.	10	11	43	M.	10	11	43	M.	10	10	43	M.	10	10
☾	NEW MOON...	18	2	47	E.	18	2	47	E.	18	2	47	E.	18	2	47	E.	18	1	47	E.	18	1
☾	FIRST QUARTER...	26	8	40	M.	26	8	40	M.	26	8	40	M.	26	8	40	M.	26	7	40	M.	26	7



Least Rainfall During the Summer.

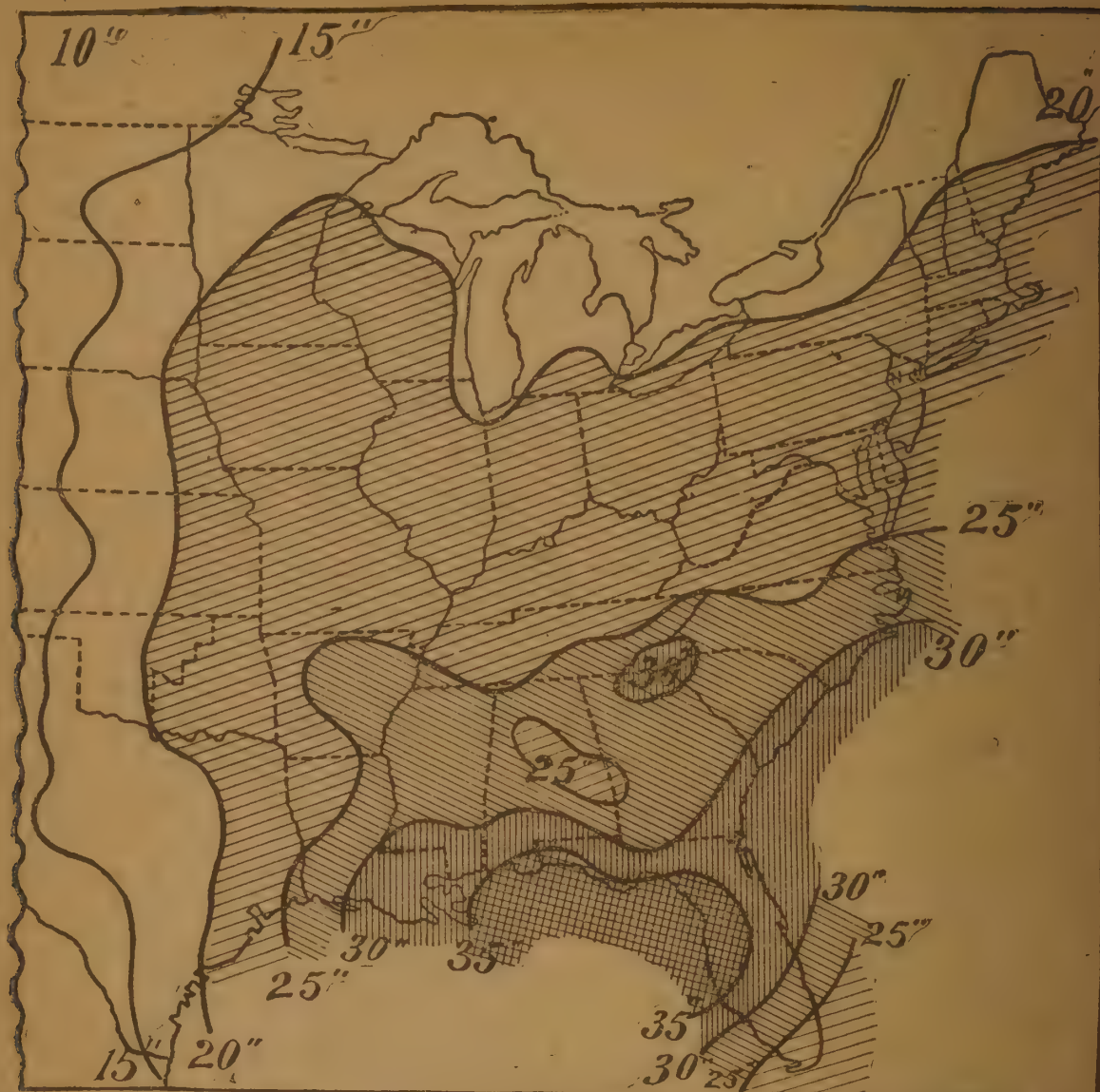
This chart shows the smallest amount of rainfall that has ever been recorded for the period from April 1 to September 30. It indicates that east of the Alleghanies, the season of least rainfall has received about 60 per cent as much as usual, west of the Alleghanies about 55 per cent. Dry years are not distributed evenly. Intense drouths are not general in extent of territory covered. The least rainfall occurs about once in 25 years. Redrawn from Bulletin D, Weather Bureau.

Years in Which a Given Amount Will Double.

AT SIMPLE AND COMPOUND INTEREST.

Rate.	At Simple Interest.	Compound- ed Annually.	Compound- ed Semi-Annually.	Rate.	At Simple Interest.	Compound- ed Annually.	Compound- ed Semi-Annually.
1.....	100 Years	69.666	69.487	6.....	16.67	11.896	11.725
1½.....	66.66	46.556	46.382	6½.....	15.38	11.007	10.836
2.....	50.00	35.004	34.830	7.....	14.29	10.245	10.075
2½.....	40.00	28.071	27.899	7½.....	13.33	9.585	9.914
3.....	33.33	23.450	23.278	8.....	12.50	9.006	8.837
3½.....	28.57	20.150	19.977	8½.....	11.76	8.497	8.346
4.....	25.00	17.673	17.502	9.....	11.11	8.043	7.874
4½.....	22.22	15.748	15.576	9½.....	10.52	7.638	7.468
5.....	20.00	14.207	14.036	10.....	10.00	7.273	7.121
5½.....	18.18	12.946	12.775	12.....	8.34	6.110	5.948

[illegible]



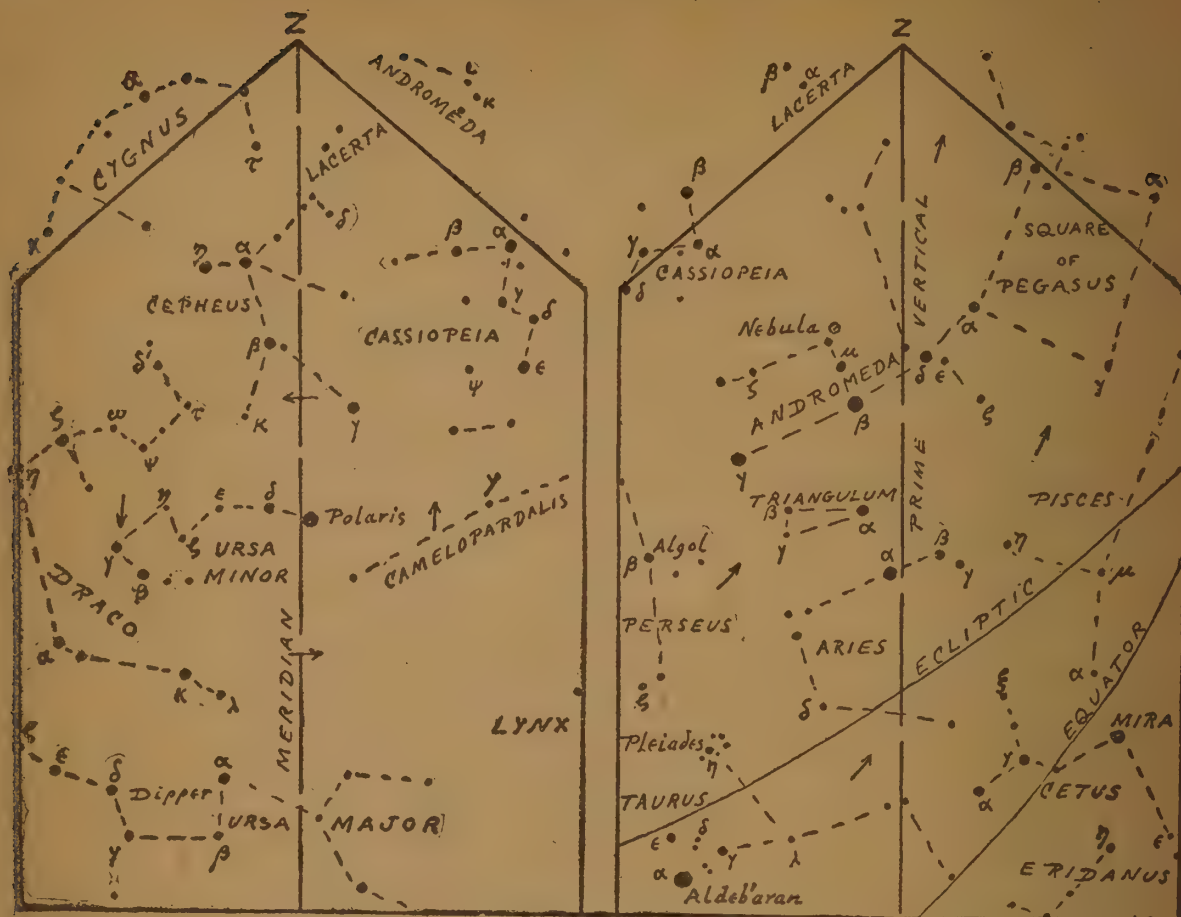
Normal Summer Rainfall.

April 1 to Sept. 30, east of the 105th meridian. Based on daily records kept since 1870, though part of the area has records of less than 20 consecutive years. This region broadly outlines the area east of the Rockies adapted to agriculture without irrigation. Of the year's average precipitation, 70 per cent, or more falls between April 1 and Sept. 30 on the plains. East of the Mississippi nearer about half of the annual rainfall occurs during six summer-months. Snow, melted, is included in all data about precipitation. Redrawn from Bulletin D, Weather Bureau.

The number of asteroids discovered up to present date is 384. A number of these small planets have not been observed since their discovery, and are practically lost. Consequently, it is now sometimes a matter of doubt, until the elements have been computed, whether the supposed new planet is really new, or only an old one rediscovered.

It is supposed that a Centauri, one of the brightest stars of the Southern Hemisphere, is the nearest of the fixed stars to the earth. The researches on its parallax by Henderson and Maclear gave, for its distance from the earth, in round numbers, 20,000,000,000,000 of miles. At the inconceivably rapid rate at which light is propagated through space, it would require three years and three months to reach the earth from this star.—Whitaker.

LATITUDE		LATITUDE		LATITUDE		LATITUDE		LATITUDE		LATITUDE		LATITUDE		LATITUDE		
OF MONTREAL: Up. Mich. Wis. Minn. Dak. Idaho, Mon. and Wash.		OF BOSTON: N. England, New York State, Lower Mich. Wis. Iowa, Wyo- ming and Oregon.		OF N. YORK CITY: Phila- delphia, Conn., N. Jer- sey, Pa., Ohio, Indiana, Ill., Neb., and N. Cal.		OF WASHINGTON: Md., Va., Ky., Mo., Kas. Col., Utah and Nev.		OF CHARLESTON: N. Car- olina, Georgia, Ala., Miss., Ark., N. Mexico, Arizona, So. Cal.		OF NEW ORLEANS: Florida, Louis'a, Tex., Mex., and Lower Cal.		LATITUDE		LATITUDE		
DAY OF YEAR.	DAY OF MONTH.	DAY OF WEEK.	SUN	SUN	SUN	SUN	SUN	SUN	SUN	SUN	SUN	SUN	SUN	SUN	SUN	
			rises	sets	rises	sets	rises	sets	rises	sets	rises	sets	rises	sets	rises	
			H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	
244	1	Th	5 22	6 37	6 50	5 25	6 33	6 51	5 27	6 32	6 52	5 29	6 30	6 53	5 35	
245	2	Fr	5 23	6 35	7 9	5 26	6 32	7 13	5 28	6 30	7 15	5 30	6 28	7 17	5 36	
246	3	Sa	5 24	6 33	7 34	5 27	6 30	7 40	5 29	6 28	7 19	5 31	6 27	7 46	5 36	
247	4	Su	5 25	6 31	8 1	5 28	6 28	8 9	5 30	6 27	8 13	5 32	6 25	8 17	5 36	
248	5	Mo	5 26	6 30	8 34	5 29	6 27	8 44	5 31	6 25	8 49	5 33	6 24	8 54	5 37	
249	6	Tu	5 27	6 28	9 13	5 30	6 25	9 24	5 32	6 22	9 30	5 34	6 22	9 36	5 38	
250	7	We	5 29	6 26	9 58	5 32	6 23	10 4	5 33	6 22	10 15	5 34	6 20	10 31	5 38	
251	8	Th	5 30	6 24	10 51	5 33	6 22	11 2	5 34	6 20	11 8	5 35	6 19	11 14	5 39	
252	9	Fr	5 31	6 22	11 47	5 34	6 20	11 58	5 35	6 18	12 1	5 36	6 17	12 11	5 39	
253	10	Sa	5 33	6 20	morn	5 35	6 16	morn	5 36	6 15	0 3	5 37	6 16	0 9	5 40	
254	11	Su	5 34	6 18	0 47	5 36	6 16	0 57	5 37	6 15	1 1	5 38	6 14	1 6	5 41	
255	12	Mo	5 35	6 16	1 51	5 37	6 14	1 59	5 38	6 14	2 3	5 39	6 13	2 7	5 42	
256	13	Tu	5 36	6 14	2 57	5 38	6 13	3 3	5 39	6 12	3 6	5 40	6 11	3 6	5 43	
257	14	We	5 37	6 12	4 6	5 39	6 11	4 8	5 40	6 10	4 10	5 41	6 10	4 12	5 43	
258	15	Th	5 39	6 11	5 17	5 40	6 9	5 17	5 41	6 9	5 17	5 42	6 8	5 17	5 44	
259	16	Fr	5 40	6 9	sets	5 41	6 7	sets	5 42	6 7	sets	5 43	6 6	sets	5 45	
260	17	Sa	5 41	6 7	6 24	5 42	6 6	6 28	5 43	6 5	6 33	5 44	6 5	6 35	5 46	
261	18	Su	5 42	6 5	6 48	5 43	6 4	6 56	5 44	6 4	7 0	5 45	6 3	7 4	5 47	
262	19	Mo	5 43	6 3	7 21	5 44	6 2	7 31	5 45	6 2	7 35	5 46	6 1	7 40	5 48	
263	20	Tu	5 45	6 1	8 2	5 45	6 0	8 13	5 46	6 0	8 19	5 47	5 59	8 25	5 49	
264	21	We	5 46	5 59	8 53	5 46	5 59	9 5	5 47	5 59	9 11	5 48	5 58	9 17	5 50	
265	22	Th	5 47	5 57	9 56	5 47	5 57	10 8	5 48	5 57	10 14	5 48	5 57	10 19	5 51	
266	23	Fr	5 48	5 55	11 6	5 49	5 55	11 18	5 49	5 55	11 23	5 49	5 55	11 28	5 52	
267	24	Sa	4 49	5 53	morn	5 50	5 53	morn	5 50	5 54	morn	5 50	5 53	morn	5 53	
268	25	Su	4 51	5 51	0 24	5 51	5 52	0 32	5 51	5 52	0 37	5 50	5 52	0 41	5 54	
269	26	Mo	4 52	5 49	1 41	5 52	5 50	1 47	5 52	5 50	1 51	5 51	5 50	1 54	5 55	
270	27	Tu	4 53	5 47	3 2	5 53	5 48	3 5	5 53	5 48	3 8	5 52	5 49	3 10	5 56	
271	28	We	4 54	5 45	4 22	5 54	5 46	4 23	5 54	5 47	4 24	5 53	5 47	4 24	5 58	
272	29	Th	4 56	5 43	5 32	5 55	5 45	5 30	5 55	5 45	5 29	5 54	5 45	5 28	5 59	
273	30	Fr	4 57	5 42	rises	5 56	5 43	rises	5 56	5 43	rises	5 55	5 44	rises	5 60	
MOON'S PHASES.			MONTREAL		BOSTON.		NEW YORK.		WASH'TON.		CHARL'TON		CINCINNATI		ST. PAUL.	
			D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.	
LAST QUARTER			15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.	
NEW MOON...			22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.	
FIRST QUARTER			29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.	
FULL MOON...			29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.	
			D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.	
			15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.	
			22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.	
			29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.	
			D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.	
			15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.	
			22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.	
			29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.	
			D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.	
			15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.	
			22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.	
			29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.	
			D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.	
			15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.	
			22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.	
			29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.	
			D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.	
			15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.	
			22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.	
			29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.	
			D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.	
			15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.	
			22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.	
			29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.	
			D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.	
			15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.	
			22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.	
			29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.	
			D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.	
			15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.	
			22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.	
			29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.	
			D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.	
			15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.	
			22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.	
			29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.	
			D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.	
			15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.	
			22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.	
			29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.	
			D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.	
			15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.	
			22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.	
			29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.	
			D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.	
			15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.	
			22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.	
			29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.	
			D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.	
			15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.	
			22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.	
			29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.	
			D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.	
			15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.	
			22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.		22 9 39 E.	
			29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.		29 6 10 E.	
			D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.	
			15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.		15 7 51 E.	
			22 9 39 E.</													



NORTHERN CONSTELLATIONS

8.30 p. m. October 15.

9.30 p. m. October 1.

10.30 p. m. September 15.

Polaris is still east of due north, and the Little Dipper is bottom up, pouring into the Great one in Ursa Major, underneath it. Everything is just reversed from the positions in the northern map of April. The Dragon, then east of the pole star, is now west of it. Cepheus, then below Polaris, is now above it. Still higher is the little asterism of the Lizard; on the left of it, the brilliant stars of Cygnus, and on its right the spreading Andromeda. Beneath is the ascending Cassiopeia, and the broad but scantily marked Camelopard below it, on the level of the pole star; while the almost starless region of the Lynx occupies the region to the northeast horizon.

EASTERN CONSTELLATIONS

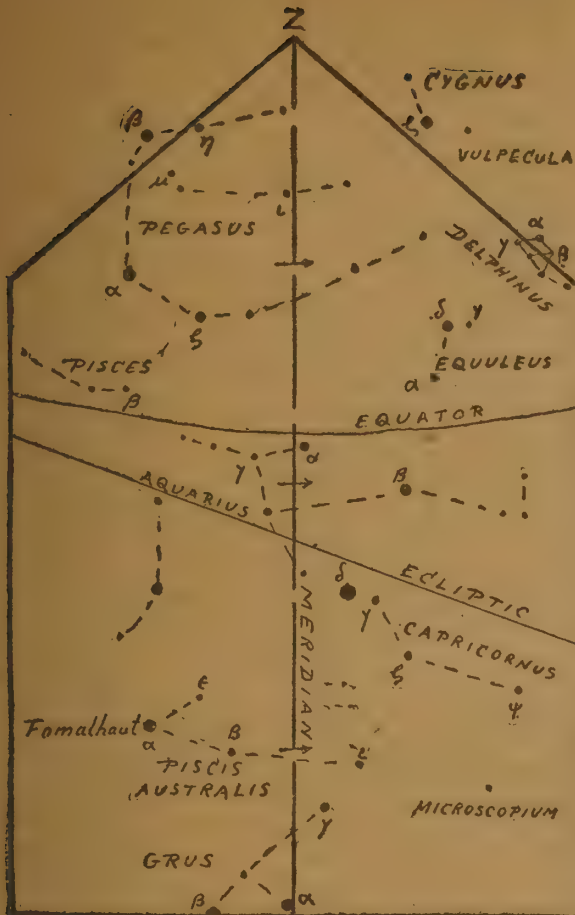
8.30 p. m. October 15.

9.30 p. m. October 7.

10.30 p. m. September 15.

Looking eastward and well up from the horizon, the great central constellation is Andromeda. The wonderful nebula with elliptic rings is almost in the middle of it. Cassiopeia is on its left, and the expanding Pegasus on its right, but rather higher. At the northeast horizon the ecliptic begins to rise obliquely. Already the Pleiades are visible, betokening the return of winter. Below them are the Hyades. Above both is Perseus, with Algor in view all night. Near by on its right is the Triangle, below it and due east the Ram, south of which and slightly higher is the constellation of the Fishes, and under them the Whale, with its famous variable star, Mira, "The Wonderful." During November and December, Mars is among the stars of Cancer, rising in the northeast about 10 p. m. November 1, and about 7 p. m. at Christmas.

TO MEND IRON POTS—Mix finely sifted lime with some white of an egg, till a thin kind of paste is formed, then add some iron filings. Apply this to the fracture, and the vessel will be found nearly as sound as ever.



SOUTHERN CONSTELLATIONS

8.30 p. m. October 15.

9.30 p. m. October 1.

10.30 p. m. September 15.

The southern heavens are studded with but few conspicuous stars. Pegasus is high up in the meridian, with the Swan and Vulpecula on its right. Below them are the Dolphin and the Little Horse. The ecliptic, in its least interesting region, slants downward toward the southwest—Pisces is east of the meridian, Aquarius nearly central is southing, and Capricornus has already passed on to the west—all three by no means striking constellations. Below them the Southern Fish is southing, with its one conspicuous luminary, Fomalhaut, considerably east of due south. The stars of the Crane are too far south to be well seen in our latitudes.



WESTERN CONSTELLATIONS

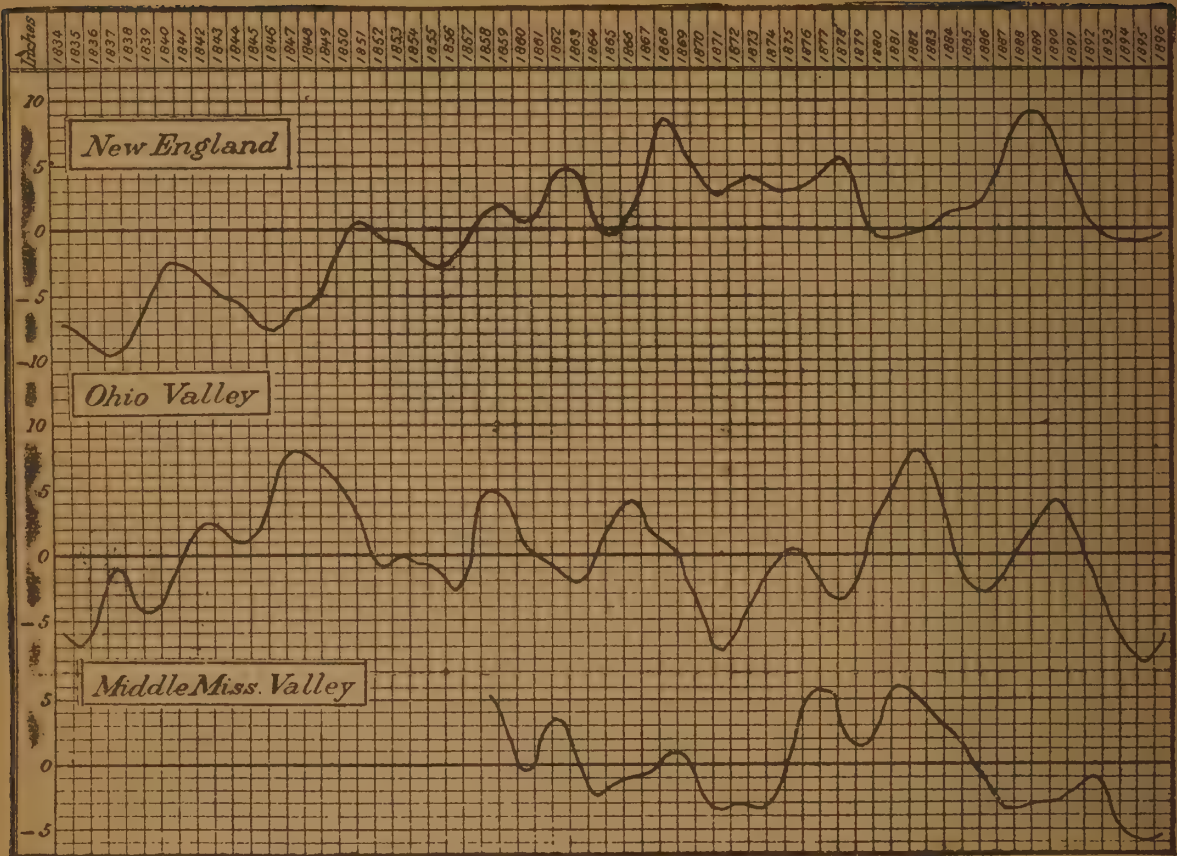
8.30 p. m. October 15.

9.30 p. m. October 1.

10.30 p. m. September 15.

Well up toward the point overhead is the spreading magnificence of Cygnus, its chief star Deneb having just crossed to the north of the prime vertical. Exactly below it is the Lyre, with the sparkling Vega, and underneath Lyra is wide-spreading Hercules, though containing few very bright stars. Still lower is the Serpent, and south of due west is the serpent-bearer, Ophiuchus. High above the southwest horizon is the little Dolphin and under it the well-marked Eagle, from which, obliquely to the horizon and through Sagitta, Vulpecula, the Swan and Cepheus, stream the star-lit expanses of the Milky Way. Through October and November, Venus is still evening star, at last passing the sun about December 1, during which month she comes above the southeast horizon before sunrise.

TO CLEAN BRASS ORNAMENTS—Brass ornaments that have not been gilded or lacquered, may be cleaned, and a very brilliant color given to them, by washing them with alum boiled in strong lye, in the proportion of an ounce to a pint, and afterward rubbing them with a strong tripoli.



Progressive Averages of Precipitation.

The black horizontal lines at zero represent the normal average precipitation. How much greater or less the precipitation was each year from 1834 to 1896 is shown by the wavy lines above or below this horizontal. This may be measured by the light lines, each space indicating one inch of rain. Studies of this chart and all data bearing upon it warrant the assumption that "there is not a progressive movement from west to east in drouths as in ordinary weather conditions." Nor does there appear to be less rain now than 50 years ago, take one year with another.

Chronological Cycles.

- (1) Dominical or Sunday Letter,

(2) Epact (Moon's Age Jan. 1),

(3) Lunar Cycle or Golden No.,

(4) Solar Cycle,
- B.

7

18

3
- (5) Roman Indiction,

(6) Julian Period,

(7) Dionysian Period,

(8) Jewish Lunar Cycle,
- 11

6611

227

15

Explanatory Note.—The Dominical Letter indicates the day of the year on which the first Sunday occurs; B. is the second letter, and the 2d of January will be Sunday. The Golden Number is the number in a cycle of nineteen years, which shows how many years have passed since New Moon fell on January 1. This and (1) are chiefly used in fixing the date of Easter. No (4) is a cycle of twenty-eight years, after which the days of the week will recur in the same order; is used to find (1). Roman Indiction is a cycle of fifteen years, and is of no utility except to chronologers. Julian Period is a cycle of 7980 years, and is the product of (3), (4) and (5) and shows the time when (3), (4) and (5) will coincide or begin at the same time. Dionysian Period is a cycle of 532 years, and is called the Great Paschal Cycle, being the product of the Solar and Lunar Cycles. This and (6) are chiefly used in chronology.

Year.	Month.	Begins.	Days.	Year.	Month.	Begins.	Days.
1315	8 Sheban	Dec. 26	29	1316	2 Saphar	June 21	29
1315	9 Ramadan	Jan. 24	30	1316	3 Rabia I	July 20	30
1315	10 Schewall	Feb. 23	29	1316	4 Rabia II	Aug. 19	29
1315	11 D'sul Kadah	Mch. 24	30	1316	5 Jomadhi I	Sep. 17	30
1315	12 D'sul Rejjah	Apr. 23	29	1316	6 Jomadhi II	Oct. 17	29
1316	1 Muharrem	May 22	30	1316	7 Redjeb	Nov. 15	30

10th MONTH.

18

OCTOBER.

98

31 DAYS

DAY OF YEAR.	DAY OF MONTH.	DAY OF WEEK.	LATITUDE OF MONTREAL: Up. Mich. Wis. Minn. Dak. Idaho, Mon. and Wash.				LATITUDE OF BOSTON: N. England, New-York State, Lower Mich. Wis. Iowa, Wyoming and Oregon.				LATITUDE OF N. YORK CITY: Philadelphia, Conn., N. Jersey, Pa., Ohio, Indiana, Ill., Neb., and N. Cal.				LATITUDE OF WASHINGTON: Md., Va., Ky., Mo., Kas., Col., Utah and Cal.				LATITUDE OF CHARLESTON: N. Carolina, Georgia, Ala., Miss., Ark., N. Mexico, Arizona, So. Cal.				LATITUDE OF NEW ORLEANS: Florida, Louisia, Tex., Mex., and Lower Cal.			
			Sun rises	Sun sets	Moon rises	H. W. sets	Sun rises	Sun sets	Moon rises	H. W. sets	Sun rises	Sun sets	Moon rises	H. W. sets	Sun rises	Sun sets	Moon rises	H. W. sets	Sun rises	Sun sets	Moon rises	H. W. sets	Sun rises	Sun sets	Moon rises	H. W. sets
274	1	Sa	5 59	5 40	5 59	6 7	5 57	5 41	6 7	5 59	5 56	5 42	6 15	8 38	5 56	5 44	6 15	8 38	5 56	5 44	6 15	8 38	5 56	5 44	6 15	8 38
275	2	So	6 0	5 38	6 31	6 41	5 58	5 39	6 41	ev. 43	5 58	5 40	6 45	9 19	5 57	5 41	6 50	9 19	5 57	5 41	6 50	9 19	5 57	5 41	6 50	9 19
276	3	Mo	6 1	5 36	7 9	7 20	6 0	5 36	7 20	ev. 43	5 59	5 38	7 25	10 40	5 58	5 39	7 31	10 40	5 58	5 39	7 31	10 40	5 58	5 39	7 31	10 40
277	4	Tu	6 2	5 34	7 52	8 41	6 1	5 34	8 41	2 56	6 0	5 37	8 9	10 40	6 0	5 36	8 15	10 40	6 0	5 36	8 15	10 40	6 0	5 36	8 15	10 40
278	5	We	6 4	5 32	8 41	9 37	6 2	5 34	8 53	2 56	6 1	5 35	8 58	11 20	6 0	5 36	9 4	11 20	6 0	5 36	9 4	11 20	6 0	5 36	9 4	11 20
279	6	Th	6 5	5 30	9 37	10 35	6 3	5 33	9 48	3 44	6 2	5 33	10 50	ev. 5	6 1	5 34	10 55	ev. 5	6 1	5 34	10 55	ev. 5	6 1	5 34	10 55	ev. 5
280	7	Fr	6 6	5 28	10 35	11 45	6 4	5 31	10 45	4 35	6 3	5 30	11 50	0 52	6 2	5 33	11 54	0 52	6 2	5 33	11 54	0 52	6 2	5 33	11 54	0 52
281	8	Sa	6 7	5 26	11 37	12 45	6 5	5 29	11 45	5 27	6 4	5 30	12 50	1 50	6 3	5 32	12 54	1 50	6 3	5 32	12 54	1 50	6 3	5 32	12 54	1 50
282	9	So	6 9	5 24	12 37	1 52	6 6	5 27	12 37	6 22	6 5	5 29	1 52	2 42	6 4	5 30	1 52	2 42	6 4	5 30	1 52	2 42	6 4	5 30	1 52	2 42
283	10	Mo	6 10	5 23	0 42	2 58	6 8	5 26	0 48	7 15	6 7	5 27	0 51	3 37	6 5	5 29	0 54	3 37	6 5	5 29	0 54	3 37	6 5	5 29	0 54	3 37
284	11	Tu	6 13	5 21	1 48	4 6	6 10	5 24	1 52	8 6	6 7	5 26	1 55	4 29	6 6	5 27	1 57	4 29	6 6	5 27	1 57	4 29	6 6	5 27	1 57	4 29
285	12	We	6 14	5 17	4 6	5 15	6 11	5 21	4 5	9 40	6 9	5 22	4 4	6 2	6 8	5 24	4 4	6 2	6 8	5 24	4 4	6 2	6 8	5 24	4 4	6 2
286	13	Th	6 16	5 15	5 15	6 32	6 12	5 19	5 13	10 24	6 10	5 21	5 11	6 47	6 9	5 23	5 9	6 47	6 9	5 23	5 9	6 47	6 9	5 23	5 9	6 47
287	14	Fr	6 17	5 14	6 32	7 14	6 14	5 18	6 26	11 8	6 13	5 18	6 23	7 30	6 11	5 21	6 20	7 30	6 11	5 21	6 20	7 30	6 11	5 21	6 20	7 30
288	15	Sa	6 19	5 12	sets	8 14	6 15	5 16	sets	11 51	6 13	5 18	sets	8 13	6 10	5 20	sets	8 13	6 10	5 20	sets	8 13	6 10	5 20	sets	8 13
289	16	So	6 20	5 10	6 0	9 10	6 16	5 15	6 11	12 37	6 14	5 16	6 16	8 58	6 12	5 18	6 21	8 58	6 12	5 18	6 21	8 58	6 12	5 18	6 21	8 58
290	17	Mo	6 21	5 8	6 49	10 10	6 17	5 13	7 1	1 24	6 15	5 15	7 6	9 44	6 13	5 17	7 12	9 44	6 13	5 17	7 12	9 44	6 13	5 17	7 12	9 44
291	18	Tu	6 22	5 7	7 50	11 10	6 18	5 11	8 1	2 15	6 16	5 13	8 7	10 35	6 14	5 16	8 13	10 35	6 14	5 16	8 13	10 35	6 14	5 16	8 13	10 35
292	19	We	6 24	5 5	8 58	12 10	6 19	5 10	9 10	3 10	6 17	5 12	9 16	11 35	6 15	5 14	9 21	11 35	6 15	5 14	9 21	11 35	6 15	5 14	9 21	11 35
293	20	Th	6 25	5 4	10 13	1 13	6 20	5 8	10 23	4 10	6 18	5 11	10 28	12 37	6 16	5 13	10 33	12 37	6 16	5 13	10 33	12 37	6 16	5 13	10 33	12 37
294	21	Fr	6 26	5 2	11 31	2 13	6 22	5 7	11 38	5 11	6 19	5 9	11 42	0 45	6 17	5 10	11 45	0 45	6 17	5 10	11 45	0 45	6 17	5 10	11 45	0 45
295	22	Sa	6 27	5 0	12 31	3 13	6 23	5 5	12 37	6 20	6 18	5 9	12 42	1 37	6 18	5 9	12 45	1 37	6 18	5 9	12 45	1 37	6 18	5 9	12 45	1 37
296	23	So	6 29	4 59	0 48	4 59	6 24	5 4	0 53	7 27	6 20	5 6	0 56	2 7	6 19	5 10	0 58	2 7	6 19	5 10	0 58	2 7	6 19	5 10	0 58	2 7
297	24	Mo	6 30	4 57	1 48	5 57	6 25	5 3	1 58	8 25	6 21	5 5	2 10	4 28	6 19	5 12	2 11	4 28	6 19	5 12	2 11	4 28	6 19	5 12	2 11	4 28
298	25	Tu	6 32	4 56	2 48	6 57	6 26	5 1	3 18	9 18	6 22	5 4	3 17	5 20	6 20	5 6	3 17	5 20	6 20	5 6	3 17	5 20	6 20	5 6	3 17	5 20
299	26	We	6 33	4 54	3 49	8 8	6 28	5 0	4 28	10 18	6 24	5 4	4 26	6 8	6 22	5 8	4 27	6 8	6 22	5 8	4 27	6 8	6 22	5 8	4 27	6 8
300	27	Th	6 34	4 52	4 40	9 18	6 29	4 58	5 39	11 7	6 25	5 2	5 36	7 35	6 23	5 4	5 33	7 35	6 23	5 4	5 33	7 35	6 23	5 4	5 33	7 35
301	28	Fr	6 36	4 51	5 44	10 18	6 30	4 57	6 50	12 17	6 26	5 0	6 42	8 44	6 24	5 2	6 42	8 44	6 24	5 2	6 42	8 44	6 24	5 2	6 42	8 44
302	29	Sa	6 37	4 49	6 44	11 18	6 31	4 56	8 0	1 35	6 28	4 59	7 42	9 46	6 25	5 0	7 42	9 46	6 25	5 0	7 42	9 46	6 25	5 0	7 42	9 46
303	30	So	6 39	4 48	7 44	12 18	6 33	4 54	9 0	2 35	6 30	4 57	8 47	10 50	6 27	5 0	8 47	10 50	6 27	5 0	8 47	10 50	6 27	5 0	8 47	10 50
304	31	Mo	6 40	4 48	8 44	1 18	6 34	4 54	10 0	3 35	6 31	4 54	9 50	11 50	6 28	5 0	9 50	11 50	6 28	5 0	9 50	11 50	6 28	5 0	9 50	11 50

MOON'S PHASES.

LAST QUARTER
NEW MOON...
FIRST QUARTER
FULL MOON...

MONTREAL.

BOSTON.

NEW YORK.

WASHINGTON.

CHARLESTON.

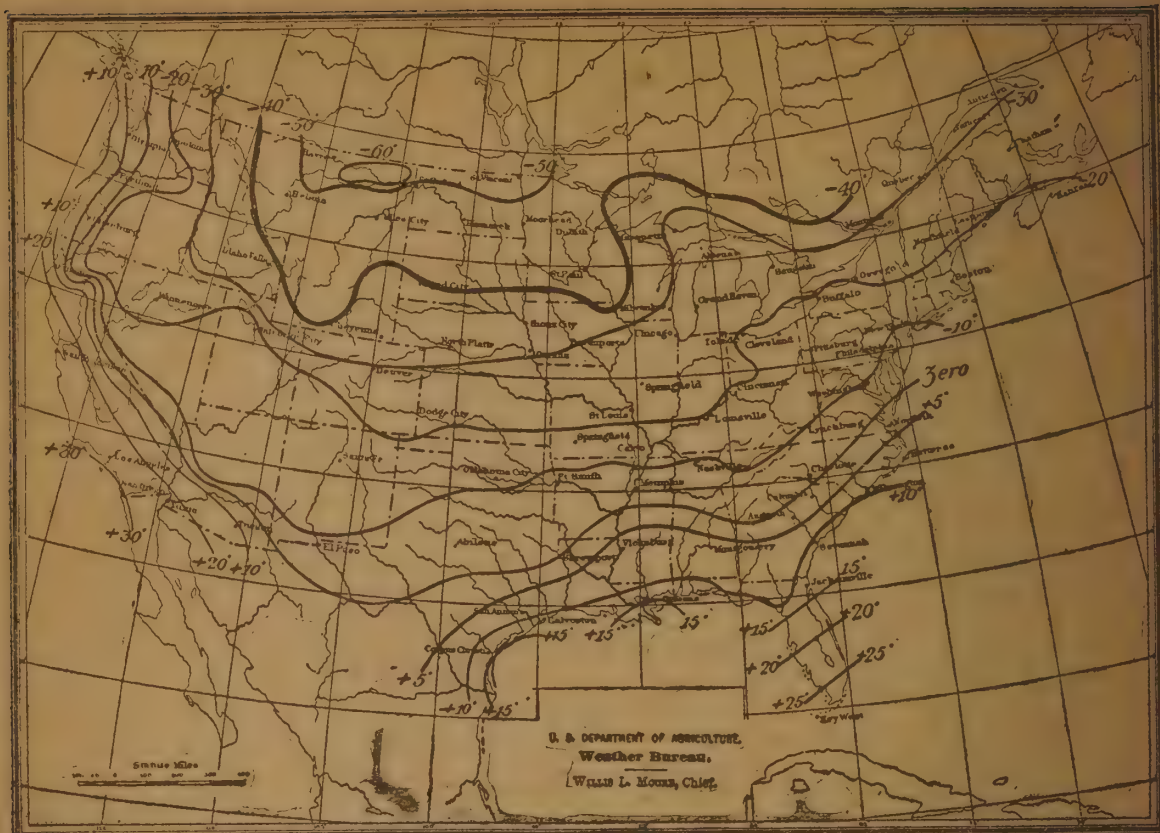
N. ORLEANS.

CINCINNATI.

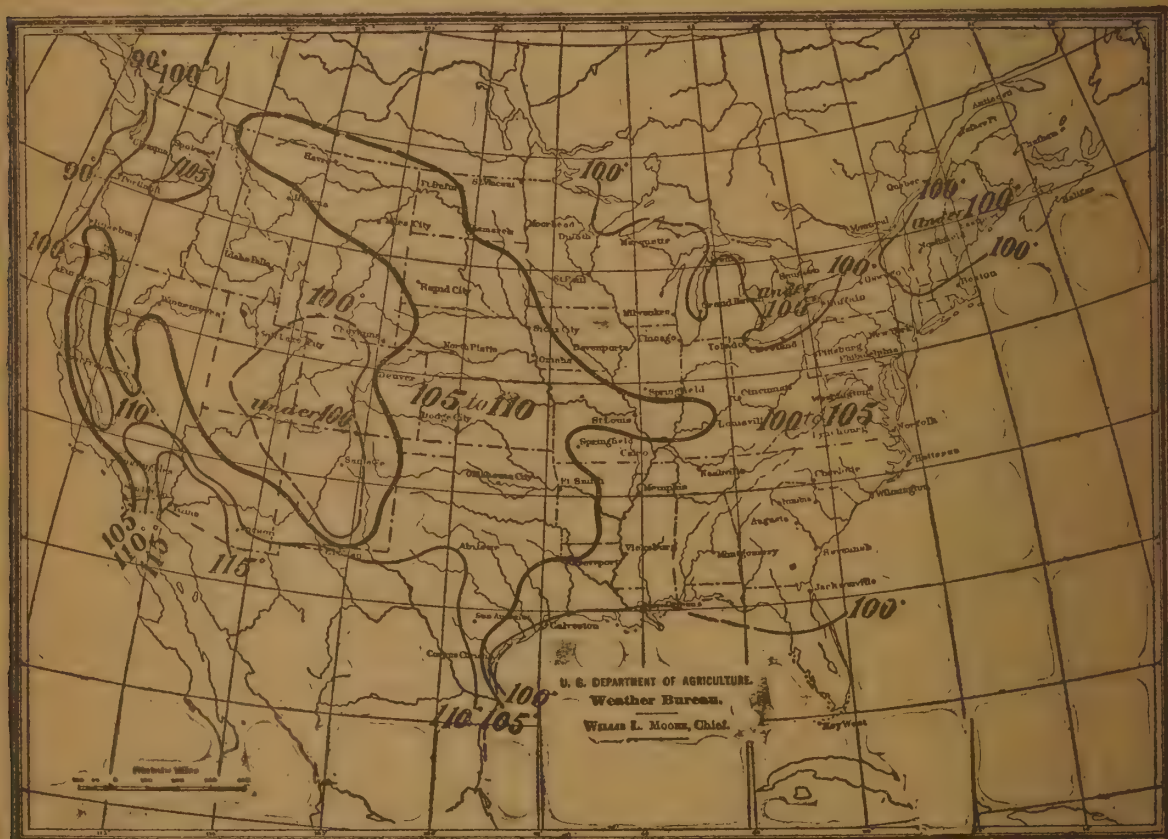
CHICAGO.

ST. PAUL.

ST. LOUIS.



Lowest temperatures ever recorded. Plus mark (+) above zero; minus mark (—) below.



Highest temperatures ever recorded at Weather Bureau Stations.

11th MONTH.

18

NOVEMBER.

98

30 DAYS

DAY OF YEAR.	DAY OF MONTH.	DAY OF WEEK.	LATITUDE			LATITUDE			LATITUDE			LATITUDE			LATITUDE			LATITUDE			LATITUDE			LATITUDE			LATITUDE		
			Sun	Sun	Moon	Sun	Sun	Moon	Sun	Sun	Moon	Sun	Sun	Moon	Sun	Sun	Moon	Sun	Sun	Moon	Sun	Sun	Moon	Sun	Sun	Moon	Sun	Sun	Moon
			rises	sets	rises	rises	sets	rises	rises	sets	rises	rises	sets	rises	rises	sets	rises	rises	sets	rises	rises	sets	rises	rises	sets	rises	rises	sets	rises
			H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.
305	1	Tu	6 40	4 46	6 33	6 34	4 53	6 45	6 31	4 56	6 51	6 28	4 59	6 57	6 18	5 9	7 17	6 14	5 13	7 28	6 15	5 12	8 20	6 16	5 11	9 13	6 17	5 10	7 2
306	2	We	6 42	4 45	7 27	6 35	4 52	7 38	6 32	4 55	7 41	6 29	4 58	7 50	6 19	5 8	7 10	6 15	5 12	8 20	6 20	5 7	9 13	6 21	5 10	10 7	6 22	5 9	11 2
307	3	Th	6 43	4 43	8 23	6 36	4 51	8 34	6 33	4 54	8 39	6 30	4 57	8 45	6 20	5 7	9 3	6 16	5 11	9 13	6 21	5 6	10 7	6 22	5 10	11 2	6 23	5 5	11 58
308	4	Fr	6 45	4 42	9 24	6 38	4 49	9 33	6 34	4 53	9 37	6 31	4 56	9 42	6 21	5 6	10 55	6 17	5 10	10 7	6 22	5 5	11 58	6 18	5 9	12 8	6 19	5 8	12 54
309	5	Sa	6 46	4 40	10 28	6 39	4 48	10 35	6 36	4 52	10 39	6 33	4 55	10 43	6 22	5 5	11 52	6 18	5 9	11 58	6 23	5 4	12 54	6 24	5 8	1 5	6 25	5 7	1 51
310	6	Su	6 48	4 39	11 33	6 40	4 47	11 38	6 37	4 50	11 41	6 34	4 53	11 45	6 23	5 4	12 54	6 24	5 8	1 5	6 24	5 3	1 51	6 25	5 7	2 4	6 26	5 6	2 46
311	7	Mo	6 49	4 38	morn	6 41	4 46	morn	6 38	4 49	morn	6 35	4 52	morn	6 34	4 51	1 49	6 33	4 50	2 46	6 32	4 50	2 46	6 31	4 49	3 28	6 30	4 48	3 28
312	8	Tu	6 51	4 37	0 39	6 43	4 45	0 41	6 39	4 48	0 43	6 36	4 51	0 45	6 34	4 50	1 48	6 33	4 49	3 28	6 32	4 49	3 28	6 31	4 48	4 17	6 30	4 47	4 17
313	9	We	6 52	4 35	1 49	6 44	4 44	1 49	6 40	4 47	1 50	6 37	4 50	1 51	6 35	4 49	2 46	6 34	4 48	4 17	6 33	4 48	4 17	6 32	4 47	5 5	6 31	4 46	5 5
314	10	Th	6 54	4 34	2 53	6 45	4 43	2 51	6 41	4 46	2 50	6 38	4 51	2 52	6 36	4 50	3 31	6 35	4 49	5 5	6 34	4 48	5 5	6 33	4 48	6 23	5 4	6 32	4 47
315	11	Fr	6 55	4 33	4 7	6 46	4 42	4 3	6 42	4 45	4 3	6 39	4 49	3 58	6 27	5 1	3 51	6 26	5 2	6 23	5 1	3 51	6 25	5 1	4 52	6 24	5 6	6 23	4 46
316	12	Sa	6 56	4 32	5 25	6 47	4 41	5 18	6 43	4 44	5 14	6 40	4 48	5 10	6 38	4 47	4 58	6 37	4 47	5 52	6 37	4 46	5 52	6 36	4 46	6 24	5 5	6 35	4 45
317	13	Su	6 58	4 31	6 42	6 48	4 40	6 33	6 44	4 44	6 28	6 41	4 48	6 24	6 29	5 0	6 8	6 38	4 45	6 24	5 0	6 8	6 39	4 45	6 25	5 1	6 36	4 44	6 26
318	14	Mo	6 59	4 30	sets	6 50	4 39	sets	6 46	4 43	sets	6 42	4 47	sets	6 39	4 59	sets	6 38	4 58	7 28	6 38	4 58	7 28	6 37	4 57	8 16	6 37	4 57	8 16
319	15	Tu	7 1	4 29	5 37	6 52	4 38	5 48	6 47	4 42	5 54	6 43	4 46	6 0	6 31	4 59	6 20	6 36	4 56	8 16	6 31	4 59	6 20	6 35	4 56	9 4	6 30	4 56	9 4
320	16	We	7 2	4 28	6 46	6 53	4 37	6 57	6 49	4 41	7 3	6 44	4 45	7 9	6 32	4 58	7 28	6 30	4 55	9 4	6 31	4 59	7 28	6 29	5 2	10 5	6 28	5 3	9 57
321	17	Th	7 3	4 27	8 1	6 54	4 36	8 11	6 50	4 40	8 16	6 45	4 45	8 21	6 33	4 58	8 39	6 29	5 1	10 5	6 34	4 57	9 49	6 28	5 3	11 5	6 27	5 3	10 5
322	18	Fr	7 5	4 26	9 20	6 55	4 35	9 27	6 51	4 40	9 31	6 48	4 44	9 35	6 34	4 57	10 58	6 28	5 2	11 5	6 34	4 57	10 58	6 29	5 2	12 5	6 25	5 2	12 5
323	19	Sa	7 6	4 25	10 39	6 56	4 35	10 44	6 52	4 39	10 47	6 49	4 43	10 49	6 35	4 56	morn	6 30	4 55	12 5	6 35	4 56	morn	6 30	4 55	1 5	6 25	5 2	1 5
324	20	Su	7 8	4 24	11 58	6 58	4 34	11 59	6 54	4 38	morn	6 49	4 47	morn	6 49	4 43	morn	6 30	4 55	1 5	6 35	4 56	morn	6 30	4 55	2 5	6 25	5 2	2 5
325	21	Mo	7 9	4 23	morn	6 59	4 33	morn	6 55	4 38	0 1	6 50	4 42	0 2	6 36	4 56	0 7	6 31	4 55	2 5	6 36	4 56	0 7	6 31	4 55	3 5	6 25	5 2	3 5
326	22	Tu	7 10	4 22	1 9	7 0	4 32	1 9	6 56	4 37	0 1	6 51	4 41	1 9	6 37	4 56	1 9	6 32	4 54	3 5	6 37	4 56	1 9	6 32	4 54	4 5	6 25	5 2	4 5
327	23	We	7 11	4 21	2 20	7 1	4 31	2 18	6 57	4 37	2 17	6 52	4 41	2 16	6 38	4 56	2 11	6 33	4 53	5 12	6 38	4 56	2 11	6 33	4 53	5 12	6 25	5 2	5 12
328	24	Th	7 13	4 21	3 33	7 2	4 32	3 28	6 58	4 36	3 25	6 53	4 40	3 23	6 39	4 55	3 16	6 34	4 52	6 10	6 39	4 55	3 16	6 34	4 52	6 10	6 25	5 2	6 10
329	25	Fr	7 14	4 21	4 44	7 3	4 31	4 36	6 59	4 36	3 33	6 54	4 40	4 29	6 40	4 55	4 16	6 35	4 51	7 12	6 40	4 55	4 16	6 35	4 51	7 12	6 25	5 2	7 12
330	26	Sa	7 15	4 20	5 51	7 4	4 31	5 42	7 0	4 36	5 38	6 55	4 40	5 33	6 41	4 55	5 17	6 36	4 50	8 10	6 42	4 54	5 17	6 36	4 50	8 10	6 25	5 2	8 10
331	27	Su	7 16	4 19	6 56	7 6	4 30	6 45	7 1	4 35	6 40	6 56	4 39	6 34	6 42	4 54	6 16	6 37	4 49	9 10	6 42	4 54	6 16	6 37	4 49	9 10	6 25	5 2	9 10
332	28	Mo	7 17	4 19	rises	7 7	4 30	rises	7 2	4 35	rises	6 57	4 39	rises	6 43	4 54	rises	6 38	4 48	10 10	6 43	4 54	rises	6 38	4 48	10 10	6 25	5 2	10 10
333	29	Tu	7 19	4 18	5 18	7 8	4 29	5 29	7 3	4 34	5 35	6 58	4 39	5 41	6 43	4 54	6 1	6 39	4 47	11 10	6 43	4 54	6 1	6 39	4 47	11 10	6 25	5 2	11 10
334	30	We	7 20	4 18	6 15	7 9	4 29	6 26	7 4	4 34	6 31	6 59	4 39	6 37	6 44	4 54	6 55	6 40	4 46	12 10	6 44	4 54	6 55	6 40	4 46	12 10	6 25	5 2	12 10

MOON'S PHASES.

LAST QUARTER
NEW MOON...
FIRST QUARTER...
FULL MOON...

MONTREAL

BOSTON.

NEW YORK.

WASH'TON.

CHARL'TON.

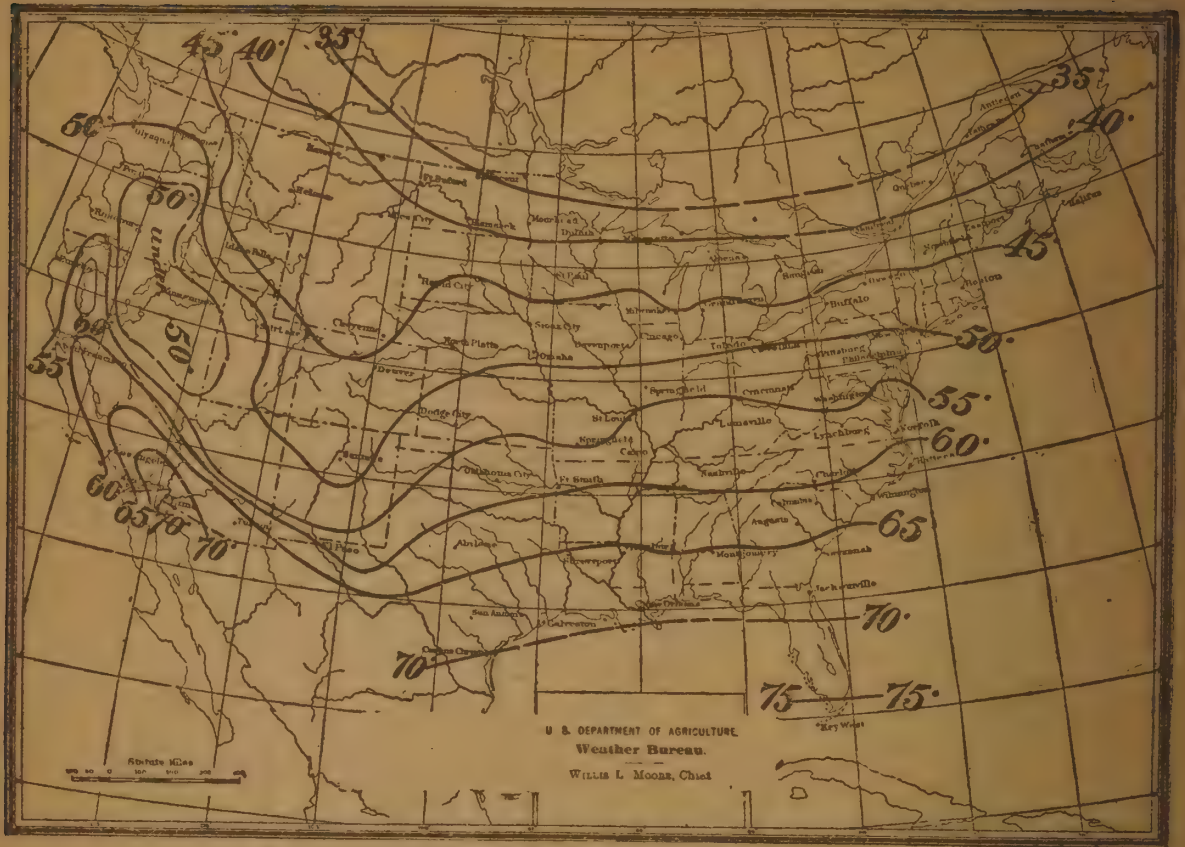
N. ORLEANS.

CINCINNATI.

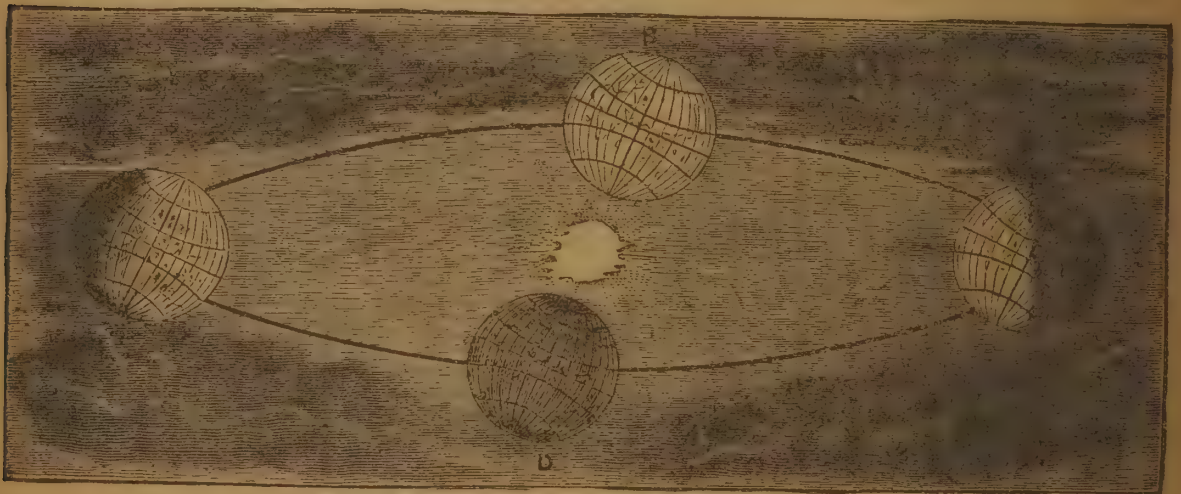
CHICAGO.

ST. PAUL.

ST. LOUIS.



Average annual temperature.



The chart shows four positions of the earth, one on each side of the sun. The left shows the earth during the summer season on the northern hemisphere. As the earth travels around the sun, it turns upon its own axis represented by the line in the illustration, between the north and south poles. The direction of this axis remains constant all the time. Hence the north pole and the north temperate region receive more moonlight in position A, while in position B, the south pole and south temperate regions receive the most moonlight at position C. As the temperate regions lie longer in the dark portions on the chart during winter while they stay longer in the light portions during summer; the long nights of winter and long days of summer in temperate zones are explained by this circumstance.

DAY OF YEAR.		DAY OF MONTH.		DAY OF WEEK.		LATITUDE OF MONTREAL: Up. Mich. Wis. Minn. Dak. Idaho, Mon. and Wash.			LATITUDE OF BOSTON: N. England, New York State, Lower Mich. Wis. Iowa, Wyoming and Oregon.			LATITUDE OF N. YORK CITY: Philadelphia, Conn., N. Jersey, Pa., Ohio, Indiana, Ill., Neb., and N. Cal.			LATITUDE OF WASHINGTON: Md., Va., Ky., Mo., Kas., Col., Utah and Cal.			LATITUDE OF CHARLESTON: N. Carolina, Georgia, Ala., Miss., Ark., N. Mexico, Arizona, So. Cal.			LATITUDE OF NEW ORLEANS: Florida, Louis'a, Tex., Mex., and Lower Cal.									
						Sun rises sets Moon rises			Sun rises sets Moon rises			Sun rises sets Moon rises			Sun rises sets Moon rises			Sun rises sets Moon rises			Sun rises sets Moon rises			Sun rises sets Moon rises						
						H. M. H. M. H. M.			H. M. H. M. H. M.			H. M. H. M. H. M.			H. M. H. M. H. M.			H. M. H. M. H. M.			H. M. H. M. H. M.			H. M. H. M. H. M.						
335	1	Th	7 21	4 17	7 14	11	11	1 11	7 10	4 29	7 24	11	11	1 11	7 10	4 29	7 24	11	11	1 11	6 45	4 54	7 49	6	39	5	0	8	0	
336	2	Fr	7 22	4 17	8 16	10	10	1 11	7 11	4 28	8 25	10	10	1 11	7 11	4 28	8 25	10	10	1 11	6 46	4 54	8 46	10	40	5	0	8 54		
337	3	Sa	7 23	4 17	9 19	9	9	2 32	7 12	4 28	9 25	9	9	2 32	7 12	4 28	9 25	9	9	2 32	6 46	4 54	9 42	10	45	5	0	9 48		
338	4	So	7 25	4 16	10 25	9	9	3 15	7 13	4 28	10 29	3	3	3 15	7 13	4 28	10 29	3	3	3 15	6 47	4 54	10 38	11	24	5	0	10 43		
339	5	Mo	7 26	4 16	11 31	9	9	4 42	7 14	4 28	11 31	4	4	4 42	7 14	4 28	11 31	4	4	4 42	6 48	4 54	11 36	ev.	5	5	6 42	5	1	11 38
340	6	Tu	7 27	4 16	12 37	8	8	5 44	7 15	4 28	12 37	4	4	5 44	7 15	4 28	12 37	4	4	5 44	6 49	4 54	12 37	morn	5	5	6 43	5	1	morn
341	7	We	7 28	4 16	1 43	8	8	6 46	7 16	4 28	1 43	4	4	6 46	7 16	4 28	1 43	4	4	6 46	6 50	4 54	1 43	0 32	1	40	6 44	5	1	0 33
342	8	Th	7 29	4 16	2 57	7	7	7 36	7 17	4 28	2 57	4	4	7 36	7 17	4 28	2 57	4	4	7 36	6 51	4 54	2 57	1 31	2	35	6 44	5	1	1 30
343	9	Fr	7 30	4 16	4 14	7	7	8 32	7 18	4 28	4 14	5	5	8 32	7 18	4 28	4 14	5	5	8 32	6 51	4 54	4 14	2 36	3	34	6 45	5	1	2 33
344	10	Sa	7 31	4 16	5 32	6	6	9 26	7 19	4 28	5 32	4	4	9 26	7 19	4 28	5 32	4	4	9 26	6 52	4 54	5 32	3 43	4	33	6 46	5	1	3 38
345	11	So	7 32	4 16	6 46	6	6	10 20	7 20	4 28	6 46	5	5	10 20	7 20	4 28	6 46	5	5	10 20	6 53	4 54	6 46	4 53	5	30	6 46	5	1	4 47
346	12	Mo	7 33	4 16	7 59	5	5	11 13	7 21	4 28	7 59	4	4	11 13	7 21	4 28	7 59	4	4	11 13	6 54	4 55	7 59	6	4	6 25	6 47	5	2	5 56
347	13	Tu	7 34	4 17	9 11	5	5	12 05	7 22	4 29	9 11	4	4	12 05	7 22	4 29	9 11	4	4	12 05	6 54	4 55	9 11	sets	7	17	6 48	5	2	sets
348	14	We	7 35	4 17	10 24	4	4	1 04	7 23	4 29	10 24	3	3	1 04	7 23	4 29	10 24	3	3	1 04	6 55	4 55	10 24	6 16	10	6 27	6 48	5	2	6 27
349	15	Th	7 36	4 17	11 37	4	4	2 04	7 24	4 29	11 37	3	3	2 04	7 24	4 29	11 37	3	3	2 04	6 56	4 56	11 37	7 31	9	6 49	5	3	7 40	
350	16	Fr	7 37	4 17	12 50	3	3	3 04	7 25	4 29	12 50	2	2	3 04	7 25	4 29	12 50	2	2	3 04	6 57	4 56	12 50	8 44	9	6 50	5	3	8 50	
351	17	Sa	7 38	4 18	1 01	3	3	4 04	7 26	4 30	1 01	2	2	4 04	7 26	4 30	1 01	2	2	4 04	6 57	4 57	1 01	9 55	10	6 50	5	3	10 6	
352	18	So	7 39	4 18	2 14	2	2	5 04	7 27	4 30	2 14	1	1	5 04	7 27	4 30	2 14	1	1	5 04	6 58	4 58	2 14	11 4	11	6 51	5	4	11 6	
353	19	Mo	7 40	4 19	3 27	1	1	6 04	7 28	4 31	3 27	0	0	6 04	7 28	4 31	3 27	0	0	6 04	6 58	4 58	3 27	morn	0	1	6 51	5	4	morn
354	20	Tu	7 41	4 19	4 40	1	1	7 04	7 29	4 31	4 40	0	0	7 04	7 29	4 31	4 40	0	0	7 04	6 58	4 58	4 40	0	1	6 52	5	5	0 5	
355	21	We	7 42	4 20	5 53	1	1	8 04	7 30	4 32	5 53	0	0	8 04	7 30	4 32	5 53	0	0	8 04	6 59	4 58	5 53	1	8	6 52	5	5	1 6	
356	22	Th	7 43	4 20	7 06	0	0	9 04	7 31	4 32	7 06	0	0	9 04	7 31	4 32	7 06	0	0	9 04	6 59	4 59	7 06	2	10	6 52	5	6	2 7	
357	23	Fr	7 44	4 20	8 19	0	0	10 04	7 32	4 33	8 19	0	0	10 04	7 32	4 33	8 19	0	0	10 04	6 59	4 59	8 19	3	10	6 53	5	6	3 6	
358	24	Sa	7 45	4 21	9 32	0	0	11 04	7 33	4 33	9 32	0	0	11 04	7 33	4 33	9 32	0	0	11 04	7 05	4 59	9 32	4	10	6 54	5	6	4 3	
359	25	So	7 46	4 21	10 45	0	0	12 04	7 34	4 33	10 45	0	0	12 04	7 34	4 33	10 45	0	0	12 04	7 05	4 59	10 45	5	10	6 54	5	7	4 3	
360	26	Mo	7 47	4 22	11 58	0	0	1 04	7 35	4 34	11 58	0	0	1 04	7 35	4 34	11 58	0	0	1 04	7 05	4 59	11 58	6	10	6 54	5	7	4 3	
361	27	Tu	7 48	4 23	1 11	0	0	2 04	7 36	4 35	1 11	0	0	2 04	7 36	4 35	1 11	0	0	2 04	7 05	4 59	1 11	6	10	6 54	5	8	4 3	
362	28	We	7 49	4 24	2 24	0	0	3 04	7 37	4 35	2 24	0	0	3 04	7 37	4 35	2 24	0	0	3 04	7 05	4 59	2 24	7	11	6 55	5	9	4 3	
363	29	Th	7 50	4 24	3 37	0	0	4 04	7 38	4 36	3 37	0	0	4 04	7 38	4 36	3 37	0	0	4 04	7 05	4 59	3 37	8	11	6 55	5	9	4 3	
364	30	Fr	7 51	4 25	4 50	0	0	5 04	7 39	4 37	4 50	0	0	5 04	7 39	4 37	4 50	0	0	5 04	7 05	4 59	4 50	9	11	6 55	5	10	4 3	
365	31	Sa	7 52	4 26	6 03	0	0	6 04	7 40	4 38	6 03	0	0	6 04	7 40	4 38	6 03	0	0	6 04	7 05	4 59	6 03	10	12	6 56	5	10	4 3	

MOON'S PHASES.				MONTREAL.		BOSTON.		NEW YORK.		WASHINGTON.		CHARLESTON.		NEW ORLEANS.		CINCINNATI.		CHICAGO.		ST. PAUL.		ST. LOUIS.	
				D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.		D. H. M.	
LAST QUARTER	6 5	6 M.	6	5	6 M.	6	5	6 M.	6	5	6 M.	6	5	6 M.	6	5	6 M.	6	4	6 M.	6	4	6 M.
NEW MOON	13 6	43 M.	13	6	43 M.	13	6	43 M.	13	6	43 M.	13	6	43 M.	13	5	43 M.	13	5	43 M.	13	5	43 M.
FIRST QUARTER	19 10	22 E.	19	10	22 E.	19	10	22 E.	19	10	22 E.	19	10	22 E.	19	9	22 E.	19	9	22 E.	19	9	22 E.
FULL MOON	27 6	39 E.	27	6	39 E.	27	6	39 E.	27	6	39 E.	27	6	39 E.	27	5	39 E.	27	5	39 E.	27	5	39 E.

MOON'S PHASES.

LAST QUARTER
NEW MOON...
FIRST QUARTER
FULL MOON...

MONTREAL.

BOSTON.

NEW YORK.

WASHINGTON.

CHARLTON.

N. ORLEANS.

CINCINNATI.

CHICAGO.

ST. PAUL.

ST. LOUIS.

D. H. M.

D. H. M.

Annual and Summer Precipitation.

The following is the first table of its kind ever published. The places selected are typical of a large part of the state or surrounding country. Fractions of an inch are omitted except for the summer months. Compiled from Bulletin D, U. S. weather bureau. See charts on Pages 32, 34, 36.

Years records have been kept.	Annual Precipitation.			Places at which the observations were taken that are included in this table.	Average Monthly Precipitation in Summer.							Summer Precipitation, Apr. 1 to Sept. 30.			Years of least rainfall in summer.
	Aver. In.	High't In.	Low'st In.		Apr. In.	May In.	June In.	July In.	Aug. In.	Sept. In.	Aver. Inches.	High'st Inches.	Lowest Inches.		
53	43	55	30	Gardiner, Me.	3.4	3.8	3.2	3.2	3.6	3.2	20	31	12	1844	
42	40	54	28	Concord, N. H.	2.8	3.3	3.1	3.7	3.9	3.4	20	28	13	1869	
53	33	49	21	Burlington, Vt.	1.9	3.1	3.2	4.0	3.6	3.5	19	34	12	1894	
61				Amherst, Mass.	3.1	3.9	3.7	4.5	4.4	3.4	23	35	14	1894	
79	45	68	27	Boston, Mass.	3.8	3.7	3.2	3.6	4.3	3.4	22	42	12	1836	
65	45	64	31	Providence, R. I.	3.7	3.8	3.3	3.3	4.2	3.2	22	35	11	1836	
27	45	59	36	Hartford, Conn.	3.0	3.6	3.0	4.1	4.6	3.2	22	33	13	1870	
69				Albany, N. Y.	2.8	3.6	4.1	4.2	4.0	3.5	22	37	14	1896	
27				Buffalo, N. Y.	2.5	3.4	3.5	3.2	3.2	3.3	19	33	11	1881	
61	45	66	28	New York City.	3.4	4.0	3.8	4.0	4.7	3.4	23	43	13	1849	
52				Newark, N. J.	3.5	4.0	3.5	4.4	5.0	3.8	24	40	12	1881	
54	37	51	26	Pittsburg, Penn.	3.0	3.5	3.6	4.0	3.4	2.9	20	34	13	1854	
72	42	61	30	Philadelphia, Penn.	3.4	3.8	3.8	4.0	4.3	3.5	23	41	10	1881	
41	43	61	31	Washington, D. C.	3.4	4.1	3.9	4.5	4.0	3.5	23	40	14	1894	
26				Baltimore, Md.	3.4	3.8	4.0	4.7	4.0	3.9	24	39	15	1893	
26				Norfolk, Va.	4.3	4.2	4.4	5.8	6.3	4.7	30	43	20	1884	
26	54	84	40	Wilmington, N. C.	2.9	4.2	5.7	7.1	7.3	6.3	34	57	27	1882	
89	49	78	24	Charleston, S. C.	2.4	3.6	4.8	6.6	7.2	5.7	30	52	11	1850	
27				Atlanta, Ga.	4.2	3.6	4.1	3.9	4.5	3.7	24	36	16	1878	
48				Savannah, Ga.	2.7	3.8	5.8	6.6	7.8	5.2	32	54	19	1881	
27	54	82	40	Jacksonville, Fla.	2.7	3.8	6.1	6.2	6.7	8.2	34	52	24	1896	
24	53	70	40	Montgomery, Ala.	4.8	4.0	4.7	4.6	4.0	2.9	25	37	18	1875	
42	53	84	37	Vicksburg, Miss.	5.3	4.4	3.9	4.5	3.4	3.3	25	43	8	1851	
26	60	86	39	New Orleans, La.	5.2	4.8	6.7	6.4	6.0	4.6	34	50	15	1891	
33				Fort Smith, Ark.	4.8	4.7	4.2	3.9	3.4	3.1	24	37	10	1856	
30	33	52	18	Austin, Texas.	3.0	4.2	2.7	1.8	2.7	4.2	19	32	9	1856	
33	9	22	3	El Paso, Tex.	0.1	0.3	0.5	1.6	1.9	1.6	6	15	1	1860	
19				Morgantown, W. Va.	3.5	3.6	4.7	5.2	4.6	3.7	25	37	18	1894	
62	42	65	25	Cincinnati, O.	3.3	4.0	4.4	3.9	3.8	3.0	22	33	12	1870	
41	37	54	26	Cleveland, O.	2.7	3.5	3.9	3.4	3.1	3.6	20	31	13	1895	
54	47	67	31	Louisville, Ky.	4.2	4.1	4.7	4.1	3.8	3.0	24	37	15	1881	
26	51	74	37	Knoxville, Tenn.	4.9	4.0	4.2	4.4	4.0	2.7	24	38	16	1894	
26	53	73	35	Memphis, Tenn.	5.4	4.4	4.6	3.4	3.5	3.1	24	49	13	1887	
18				Evansville, Ind.	4.5	4.4	4.5	3.6	3.8	3.3	24	34	15	1887	
27	42	58	25	Indianapolis, Ind.	3.6	4.0	4.5	4.2	3.3	3.1	23	37	11	1870	
22				Richmond, Ind.	3.6	4.3	3.9	3.5	3.9	4.1	23	38	10	1856	
25	42	62	27	Cairo, Ill.	3.8	4.1	4.4	3.4	2.8	2.6	21	30	10	1887	
30	34	46	22	Chicago, Ill.	3.0	3.7	3.7	3.4	2.9	3.0	20	29	12	1887	

41	35	53	24	Peoria, Ill.	3.2	3.8	3.7	4.0	3.0	3.5	21	35	10	1870
43				Fort Madison, Ia.	3.2	4.3	4.4	3.8	3.7	3.7	23	38	14	1857
48				Muscatine, Ia.	3.5	4.4	4.8	3.8	4.2	3.7	24	37	11	1863
60	41	69	23	St. Louis, Mo.	3.7	4.7	5.0	3.8	3.5	3.1	24	31	11	1871
29	36	56	19	Fort Gibson, Ind. Ter.	4.1	4.5	3.9	2.7	2.8	2.7	21	35	10	1838
46	33	48	21	Detroit, Mich.	2.6	3.1	3.8	3.6	2.6	3.0	19	31	11	1865
33	32	49	23	Lansing, Mich.	2.4	3.4	4.0	3.1	2.7	2.9	19	33	13	1887
44				Fort Snelling, Minn.	2.3	3.2	3.9	3.4	3.1	3.3	19	35	12	1852
29				Minneapolis, Minn.	2.5	3.5	4.1	3.2	3.7	3.4	20	33	11	1894
39	28	39	15	St. Paul, Minn.	2.5	3.5	4.1	3.3	3.8	3.2	20	28	12	1882
30				Beloit, Wis.	2.9	3.2	4.0	3.5	3.6	3.4	21	35	11	1870
28	33	53	13	Madison, Wis.	2.6	3.5	4.5	4.0	3.1	3.1	21	36	8	1895
53	31	50	21	Milwaukee, Wis.	2.8	3.4	3.8	3.2	2.7	3.0	19	30	13	1847
22	19	31	11	Bismarck, N. D.	2.3	2.5	3.5	2.3	2.0	1.2	14	23	8	1889
16	19	27	13	Fort Meade, S. D.	2.8	3.5	3.3	1.9	1.7	0.6	14	20	9	1893
20	26	41	20	Yankton, S. D.	3.3	4.0	4.1	3.5	3.0	2.6	21	32	11	1894
29	18	30	10	North Platte, Neb.	2.1	3.0	3.5	2.5	2.3	1.5	15	22	8	1869
27	31	49	18	Omaha, Neb.	3.1	4.5	5.3	4.6	3.3	3.0	24	40	11	1894
22	20	34	10	Dodge City, Kan.	1.8	3.1	3.3	3.2	2.8	1.3	16	28	9	1893
35				Manhattan, Kan.	2.6	4.1	4.5	4.7	3.6	3.0	23	36	10	1860
18				Topeka, Kan.	2.9	4.8	5.2	4.7	4.0	3.1	25	37	15	1886
15	13	21	5	Helena, Mont.	1.1	1.6	2.3	1.1	0.6	1.2	8	13	4	1889
27	14	26	7	Cheyenne, Wy.	1.5	2.3	1.5	1.9	1.6	1.0	10	17	4	1876
27	19	38	10	Boise City, Idaho.	1.3	1.6	0.8	0.2	0.2	0.4	5	9	2	1881
29	15	25	8	Salt Lake City, Utah.	2.0	2.0	1.1	0.9	1.3	1.0	8	23	2	1890
37	15	25	8	Santa Fe, N. M.	0.7	0.9	1.1	2.7	2.7	1.6	10	18	5	1889
27	14	22	9	Denver, Col.	1.0	2.7	1.3	1.7	1.4	0.9	10	15	6	1871

^a Probably an over measurement.

Coast and Interior Climates.

It may be accepted as a general rule that all coast climates are more equable than interior climates. The temperature ranges at Key West, Florida, are quite small and the mercury never goes to zero. In the year 1896, there were but five days when the daily mean temperature differed as much as eleven degrees from the mean. On two hundred and sixty-five days the difference was not greater than five degrees. Other localities having a very small range or variability of temperature are southern California and the Gulf coast of Texas. All of these places, however, are typical of warm, moist climates.

Burr Knapp's Farm Maxims.

Things that will bear watching: Weather, crops, insects, tools, expenses and your own work and words. A good field of mowing is wide-awake nights and will grow while you sleep. Whisky pickles bad temper, quarrels and poverty, but preserves nothing that is worth keeping. If you keep on grumbling until you get everything you want, you will never stop.



Map of Yukon and Klondike Gold Fields.

Klondike Gold Discoveries.

The "Klondike" district began to attract extended notice early in the summer of 1897, although the discovery of the placer gold deposits was really made in the preceding August by George Carmack. The early comers made great finds during the winter and summer of '97. One claim panned out at the rate of \$250 per hour. Two men took out \$600 in one day. Four young men secured \$49,000 and a miner from Michigan cleared \$94,000 during the winter of '97. Gold occurs as dust and nuggets, the largest nugget was worth \$250 and was about the size of a potato.

"Klondike" means "Plenty of fish." The Klondike is one of a number of creeks which flow into the Yukon and the gold is found in the gravel of the valley. Other rich streams are the Bonanza, Dominion, Indian, Hunter, Glacier, Miller, Eldorado and Gold Bottom creeks. These are in British territory. Many of the American tributaries of the Yukon are no doubt as rich as any. It is thought that the miners in the Klondike region during the winter of 1897 numbered about 20,000 and great suffering was thought likely to occur from the known scarcity of provisions and supplies.

Only the strongest and best equipped have much chance to survive the hardships of the desolate region around the Arctic circle when, during the sunless winter, the temperature falls sometimes 50 degrees below zero. The summer is four months long and begins in May. No

Great talkers are little doers.

one should go with less than \$600 to \$1000 capital, as expenses of all kinds are very great. Wages are high. Carpenters, blacksmiths, etc; are said to be in demand.

At present there are two principal routes, viz: 1. Steamer from Seattle or other Puget Sound ports, northwest via Animiak strait into Behring sea and up the Yukon to the fields, a total of some 5500 miles. 2. From Seattle or Tacoma to Sitka, thence to Juneau and to Dyea at the foot of Chilkoot Pass and through the pass to a chain of lakes beginning with Lake Lindemann, thence to the head waters of the Yukon and down the river to the Klondike. This route is 2500 miles shorter than the first but is very severe and difficult.

Other routes are also used; the one by White Pass is less severe than by the Chilkoot, and is likely to become popular.

Estimated gold product of the Yukon region in 1895 was \$3,000,000, in 1896 was nearly \$5,000,000 and in 1897 was placed at over \$10,000,000.

The Greco-Turkish War.



Map of New Frontier between Greece and Turkey (Review of Reviews). The shaded portions show territory acquired by Turkey.

The war between Greece and Turkey was a result of the attempt of Greece to aid the insurgents in Crete and to annex that island. Prevented from open hostility in Crete, by the interference of the powers, the first acts of war occurred along the Grecian frontier. Turkey declared war April 17. The first great battle was at Milouna pass, April 17-19, won by the Turks. This battle practically decided the war. There were a few gleams of Greek success during the campaign, but the Turkish forces were superior in equipment, in training and in staying powers. The Greeks rapidly lost heart, and after the evacuation of Larissa, their case was seen to be hopeless. The army soon collapsed, the navy proved useless and the treasury was empty. Greece yielded, withdrew her troops from Crete, and accepted the intervention of the powers. The terms of peace, as shown by the map, include the cession to Turkey of certain portions of Grecian territory indicated by the shaded portions of the map, including several mountain tops and important passes. Greece pays a war indemnity of 4,000,000 Turkish pounds, and the revenues of the country will be placed under the control of the powers to protect bondholders and to secure payment of the indemnity.

Events of the Year.

DECEMBER, 1896.

- 1—President Diaz of Mexico inaugurated for fifth term.
- 2—Newfoundland buys the last private railway in the colony.
- 3—The Windward and Leeward islands devastated by a cyclone.
- 4—All the harbor workmen in Hamburg, Ger., called out on strike.
- 5—Launching of U. S. gunboats Newport and Vicksburg.
- 6—Death of Nathan Mears, Chicago pioneer.
- 7—Fifty-fourth Congress assembles.
- 8—Report of assassination of Maceo, Cuban leader.
- 9—Death of Alfred Nobel, inventor of nitro-glycerine.
- 10—U. S. coast defense monitor, Puritan, commissioned.
- 11—110 persons buried by falling building, Xeres, Spain.
- 12—Hale wins six-day bicycle race, New York, 1910 miles.
- 13—Death of Salvini, the actor.
- 14—Failure of Hamburg dock laborers' strike.
- 15—Meeting of National Irrigation congress, Phoenix, Ariz.
- 19—Strike of Indiana coal miners ended.
- 21—Illinois national bank of Chicago fails for \$11,000,000.
- 22—2000 Armenian prisoners released by sultan.
- 23—Greater Republic of Central America formally recognized by Pres. Cleveland.
- 27—Railway disaster in Alabama, 27 lives lost.
- 28—Landslide in County Kerry, Ire.
- 29—Mr Gladstone's 83d birthday.

JANUARY, 1897.

- 2—Many bank failures in the west.
- 4—Legislatures meet in California, Idaho and Tennessee.
- 5—Emperor William of Germany attempts to regulate duelling.
- 8—Rev. Dr Temple made archbishop of Canterbury.
- 9—Relief measures for India begin in England.
- 11—Expedition treaties between United States and Argentine Republic. Electoral college votes.
- 12—M. Brisson re-elected president of French chamber of deputies.
- 13—Monetary conference at Indianapolis.
- 14—Oklahoma free homestead bill passed. Mt. Aconcagua in the Andes 22,000 ft. high first ascended.
- 15—Great storm in Southern California.
- 16—Manitoba school settlement condemned by Bishop Begin.

- 18—South Carolina dispensary law declared unconstitutional in part. Arthur Palmer, a milkman of Mamaroneck, N. Y., shot his brother, mother and sister.
- 19—Three negroes charged with murder, lynched near Lynchburg, S. C. Harbor and fortifications convention at Tampa, Fla.
- 20—Gov. R. L. Taylor of Tennessee inaugurated.
- 21—2500 persons killed by earthquake on an island in the Persian gulf.
- 22—Coast and harbor convention at Tampa, Fla.
- 23—Death of novelist, Mrs M. H. Hungerford, known as "The Duchess."
- 25—Closing of National bank of Potsdam, N. Y.
- 26—Collateral inheritance tax declared unconstitutional in Ohio. \$1,500,000 fire in Philadelphia, Pa.
- 27—Death of Ex-Mayor Howell of Brooklyn, N. Y.
- 28—Extradition treaties ratified with Argentine and Orange Free State.
- 29—Fiftieth anniversary of New York Academy of Medicine.
- 30—Bishop of London enthroned.

FEBRUARY, 1897.

- 1—Failure of the dock laborers' strike at Hamburg, Ger., owing to lack of funds. Treaty ratified between Japan and the United States.
- 2—State capitol of Pennsylvania burned.
- 3—The plague increases in India.
- 4—French Chamber of Deputies agrees to offer bounty to beet sugar producers. Cuban reforms promised by queen of Spain. Coffee trust incorporated.
- 5—Massacres in Crete. Many bank failures in the west.
- 6—Pres. Cleveland signs order reducing pension agencies from 18 to 7. Announcement of Dr Koch's cure for rinderpest. British warships ordered to Crete.
- 8—Dr. Nansen awarded gold medal by Royal Geographical Society.
- 9—Serious workingmen's riot, Hamburg, Ger.
- 10—Electoral votes counted by Congress. Wheelmen's league meets at Albany, N. Y.
- 11—Turkey appeals to the powers concerning Greek interference in Crete.
- 12—Senate discusses arbitration treaty with Great Britain.
- 13—Situation in Crete grows threatening.
- 14—Greece calls out reserve troops.
- 15—Leroy bequest, \$1,000,000, to Yale university. Fire damages Canadian parliamentary buildings.
- 16—Delaware constitutional conven-

Not what you could be, but what you are, counts in this world.

Events of the Year—Continued.

- tion votes against female suffrage. International sanitary conference at Venice.
- 17—National congress mothers, Washington, D. C.
- 18—Boundary dispute between France and Brazil referred to arbitration by Switzerland.
- 19—Turks attacked by Greeks at Platanía. Japanese order 11,000 tons American steel rails.
- 20—Senate passes resolution of sympathy with Greece.
- 21—Foreign squadron bombards the insurgents near Canea.
- 22—13 additional forest reserves of 21,000,000 acres established by Pres. Cleveland. Texas anti-trust law declared unconstitutional. Floods along the Ohio.
- 23—Carter Harrison nominated for mayor of Chicago.
- 24—Dynamite explosion in the Nobel works, Scotland.
- 25—Sixth annual negro conference, Tuskegee, Ala. New York legislative committee on trusts closes its session.
- 26—Sanguilly released in Havana.
- 27—Venezuela boundary committee makes final report.
- 28—World's congress Seven-day Baptists, Lincoln, Neb.
- 12—Wreck of the British steamer, Norman, in the Bay of Biscay. Fighting in Samoa.
- 15—1500 houses burned in Mandalay, Burmah.
- 16—Elisha Dyer nominated for governor in Rhode Island. Three negroes lynched at Blue Spring, Fla.
- 18—The crown prince of Japan died.
- 19—Michigan supreme court orders new election for Detroit.
- 20—93d birthday Neal Dow celebrated, Portland, Me. Jacobs and Walling hung at Newport, Ky., for murder of Pearl Bryan.
- 21—Water famine and riots in Jamaica.
- 22—Australian federal convention begins session at Melbourne. Destructive tornado in Georgia, Alabama. Trans-Mississippi freight rate declared illegal by United States supreme court.
- 23—Greater New York charter passed by lower house of New York legislature.
- 24—Three Canadian members of Canadian parliament unseated for election frauds.
- 25—Death of Chas. Elliot, landscape gardener, 87 years old.
- 26—Session of the parliamentary committee on the Transvaal raid.
- 28—British syndicate buys coal fields in Jackson Co., O., for \$4,000,000.
- 29—Dr. J. J. Lewis sentenced to 18 months' imprisonment and \$500 fine for filibustering. More Panama canal scandals in France.
- 30—Trouble with Peru concerning the release of the American seaman, Ramsay.

MARCH, 1897.

- 1—Strike of 5000 garment workers, N. Y. city. Monastery of St Bernard struck by an avalanche.
- 2—Pres. Cleveland vetoes immigration restriction bill. Severe gales off the British isles.
- 4—Inauguration of President McKinley.
- 5—Cabinet officers nominated. \$500,000 fire at Peoria, Ill. Hod carriers' strike, Chicago.
- 6—Extra session of Congress called. Serious floods Ohio and Mississippi valleys.
- 7—Severe storm on Atlantic coast.
- 8—President Uruguay made dictator. Greece declines to withdraw from Crete. Mrs Henry Ward Beecher died, 85 years old. Brazilian troops defeated by insurgents.
- 9—New York committee on trusts reports. Leadville mine workers' strike ended. Cabinet holds first meeting. Serious want among workmen on Panama canal. Thomas Bram sentenced to death at Boston, Mass., for murder of Capt. Nash.
- 10—British capitalists buy a gold mine in B. C. for \$5,000,000. The Monon railway sold for \$3,001,000.
- 11—Mass meeting for arbitration treaty with Great Britain.

APRIL, 1897.

- 1—Death of Archbishop Plunket of Dublin.
- 2—Austrian cabinet resigns.
- 3—Johannes Brahms, German musical composer, died.
- 4—Riot at Malaga, Spain. American seaman, Ramsay, liberated by Peru. Emperor of Austria refuses to accept resignation of the ministry.
- 5—Italian parliament opens.
- 6—Cuban Morgan resolution introduced in congress. Carter Harrison elected mayor of Chicago. 16,000 sq. miles flooded in lower Mississippi valley.
- 7—Congress votes \$200,000 for the Mississippi flood sufferers. Gov. Dyer elected in Rhode Island. Revolt of Portuguese in South Africa. Grandson of President Kruger of the Transvaal under trial for use of insulting language toward Queen Victoria.

The proof of gold is fire; the proof of woman, gold; the proof of man, a woman.

Events of the Year—Continued.

- 9—Mayor Strong vetoes Greater New York charter. Greeks and Turks begin fighting on Thessalian frontier.
- 13—New York senate passes Greater New York charter over Mayor Strong's veto.
- 14—Senate defeats retroactive clause of the tariff bill.
- 15—Raines liquor law amended by New York legislature. \$400,000 fire in New Orleans.
- 17—War declared by Turkey.
- 18—Diplomatic relations severed between Greece and Turkey.
- 19—Greeks win at Nezeros and at Reveni. Turks take Noleui pass. Great floods near Napier, New Zealand.
- 20—Carmelites at Dublin favor a co-ordinate Irish parliament. Turks attack Turnavas. Greeks advance through Epirus. Greek squadron sails from Athens.
- 21—Russia abolishes special tax on Polish property. Turks occupy posts north of Turnavas. They abandon Fillipiado in Epirus and the Greeks take possession. Greeks bombard Platimoria in the gulf of Salonica. Greeks take the hill of Slate.
- 22—Greeks advance in Epirus and bombard forts in gulf of Salonica. Western railroads of United States sign a new passenger agreement.
- 23—Turks win at Mati. Greeks destroy Edhem Pasha's stores and provisions. Turkish fleet returns to Dardenelles. Great earthquake in Leeward islands.
- 24—Senate committee begins investigation civil service law. Greek positions on the frontier of Thessaly captured or abandoned.
- 25—Turks occupy Larissa. Greeks win small victories on the west coast.
- 26—18 western railroads adopted the new passenger tariff. Explosion on the London underground railway.
- 27—Turks abandon Louris valley. Fighting near Pentepigalia. \$2,000,000 fire at Newport News, Va.
- 28—Turks occupy Trikala. Great flood and cloudburst in West Guthrie, Okla.
- 29—Greeks retire to Pharsalia. Turks occupy Volo and Zarkos. Destructive earthquake at Montserrat, West Indies.
- 0—Greeks win at Vellestina.

MAY, 1897.

- 1—Turks again defeated at Vellestina. Coal miners' strike in Kentucky and Tennessee. Twenty-six anarchists sentenced to death in Barcelona.
- 2—Celebration of the 200th anniversary of Trinity parish, New York city.
- 3—1200 plumbers strike at Chicago.

No gain in dealing with a villain.

- 4—150 people perish at the burning of the Parisian charity bazaar.
- 5—Another victory by the Greeks at Vellestina. Turks capture at Pharsala. Senate votes against arbitration treaty. Charter of Greater New York signed by Gov. Black. Universal postal service organized at Washington, including 55 countries. Meeting national municipal league, Louisville, Ky.
- 6—Triple alliance renewed for six years. Transvaal Republic repeals its immigration law.
- 7—Yale-Princeton debate won by Princeton.
- 8—Greek fleet withdraws from Volo. Capital punishment abolished in Nicaragua. Earthquakes in Italy.
- 9—Spain authorizes a loan of \$40,000,000. Election riots in Spain.
- 10—Berliner telephone patent declared valid. Electric line opened on the former steam line between Hartford and New Britain. Exposition opened at Brussels, Belgium.
- 11—Revolution in Honduras ends. Inheritance tax of Illinois declared constitutional. Liberals win Quebec elections.
- 12—Transvaal republic comes out in favor of arbitration with Great Britain. Much damage follows a break in a levee in Louisiana.
- 13—Delaware constitutional convention decides against gambling.
- 14—Severe fighting between Turks and Greeks at Gubora and Nicopolis.
- 15—Turks attack Domokas. Washington monument at Philadelphia unveiled.
- 17—Turks win at Domokas and occupy the place. 20,000 tailors strike in New York city. E. R. Chatman goes to jail for refusal to answer questions in sugar trust investigation.
- 19—Hostilities cease between Greece and Turkey as the result of an armistice.
- 21—Spanish minister of foreign affairs resigns.
- 22—New ministry formed in Denmark.
- 23—Italy decides to retain her Abyssinian colony. New cabinet in Denmark.
- 24—Queen Victoria's 78th birthday celebrated. Old "Tombs" prison in New York city to be torn down. Trial begins in Germany of ex-Police Commissioner Von Tausch.
- 25—Breaking of levee along Rio Grande river causes great damage at El Paso, Texas.
- 26—Germany decides to buy \$7,500,000 worth of improved artillery.
- 27—Fatal railway collision in Idaho.
- 28—Three Irish members of British

Events of the Year—Continued.

parliament suspended for irregular discussion.

- 29—Fatal panic in cathedral at Pisa, Italy. Jubilee festivities at London.
- 30—Armistice of fifteen days in Crete. Earthquake in many southern and western states.

JUNE, 1897.

- 2—Pan-American commercial congress opens at Philadelphia.
- 3—Naval war college opened.
- 4—Eruption of Mt Vesuvius. Negro lynched at Urbana, O. Pan-American commercial congress adjourns.
- 5—Strike of street railway men of Chicago. University of Wisconsin wins western intercollegiate games.
- 6—Schlatter, the Denver healer, dies.
- 7—Heavy floods in Switzerland.
- 8—National commercial silver Republican party meets at Chicago.
- 9—Celebration of centennial of Augusta, Me.
- 10—Portuguese parliament opens.
- 11—Fighting between British and natives on African frontier.
- 12—Earthquake at Calcutta, India, 9 persons killed.
- 14—Immigrant station, Ellis island, New York, destroyed by fire. Suicide of Barney Barnato, the African gold stock speculator.
- 15—John E. Brady nominated governor of Alaska.
- 16—Ex-President Cleveland receives degree L.L. D. from Princeton.
- 17—Success of attempt to obtain Russian aid in protection of seal herds.
- 18—Debs' social democracy of America formed from the American railway union and other organizations. State council of Switzerland declares in favor of state railways.
- 19—Earthquakes in India. Princeton wins baseball championship.
- 20—Victories won by Cuban insurgents.
- 21—Tehuantepec, Mex., destroyed by earthquake.
- 22—Ohio valley bi-metallic league meets at Cincinnati. Reunion of confederate veterans at Nashville, Tenn.
- 23—Woman's international chess tournament begins in London.
- 24—Trouble with Japanese in Hawaii.
- 25—Much damage caused by hailstorms in Kansas.
- 26—British jubilee naval review.
- 27—New cabinet chosen in Chile.
- 28—Nazarene Bible sold for \$24,000. Dutch ministry resigns.
- 29—Delegates leave Chicago for Christian Endeavor convention in San Francisco. The British steamer Eden sinks off the east coast of Africa. Canadian parliament in session.

- 30—16,000 miners on a strike in Belgium. Opening of Pan-Anglican conference, London.

JULY, 1897.

- 2—Plague in India becomes more serious; riots occur. Strike of bituminous coal miners in central states. Cornell wins boat race at Poughkeepsie.
- 3—Death of ex-Gov. Evans of Colorado. Hundreds of people drowned by floods in Southern France.
- 5—A thousand rioters slain in Calcutta, India.
- 6—Pres. McKinley returns to Washington. International congress of naval experts at London.
- 7—Universalist young people's convention in San Francisco. Senate passes the tariff bill.
- 8—Christian Endeavor convention opens at San Francisco.
- 9—Turkey warned to cease blocking the peace negotiations.
- 10—France and Germany come to an agreement as to territory in Africa. France agrees to co-operate with America on subject of bi-metallic standard.
- 11—Andree begins his balloon voyage to north pole.
- 12—Railroad collision in Denmark; many people killed. Lexow anti-trust laws declared unconstitutional.
- 13—A \$1,000,000 drawbridge opened between Duluth, Minn., and West Superior, Wis.
- 14—Two reservoirs give way near Fishkill, N. Y., causing loss of life.
- 15—Miners return from Klondike region with large amounts of gold. Trans-Miss. congress convenes. Epworth league convention at Toronto. Baptist Y. P. U. at Chattanooga, Tenn.
- 16—Pardon of eight Cuban insurgent chiefs.
- 17—Destructive fire in oil refineries in southern Russia.
- 19—Czar of Russia demands withdrawal of Turks from Thessaly.
- 20—Opening of a Mormon jubilee celebration.
- 21—Sultan of Turkey accepts frontier line as fixed by the powers.
- 22—President Andrews of Brown university resigns by request, because of his pro-silver views.
- 24—New tariff bill signed by president goes into effect. Japan agrees to arbitration on Hawaiian dispute.
- 25—Prize-fighting prohibited in Mexico.
- 26—R. J. Tracewell, Indiana, appointed comptroller of the treasury.
- 27—British house of commons estimates \$2,000,000 required for new ves-

Annoint a villain, and he'll stab you; stab him, and he'll annoint you.

Events of the Year—Continued.

sels and warships. Death of ex-Senator Doolittle of Wisconsin.

23—Pres. McKinley extends civil service rules.

24—Union Pacific railroad ordered to be sold. Italy cedes Kassala to Great Britain.

25—Resignation Police Commissioner F. D. Grant, New York, accepted. Treaties between Great Britain, Germany and Belgium are to be terminated.

31—New treaties proposed between Great Britain and Germany. Ex-Treasurer Scadding of Illinois state university convicted of embezzlement. 1500 Cuban exiles pardoned.

AUGUST, 1897.

1—Rebellion of India becomes more serious.

2—Wages of laborers in Louisiana sugar plantations advanced.

3—Violent opposition in Portugal against the proposed firearm legislation. Death of Nelson Dingley, Sr., Lewiston, Me., age 88.

4—Rolling mills at Birmingham, Ala., resume. League of American wheelmen meet in Philadelphia.

5—Tennyson memorial unveiled on Isle of Wight.

6—Terrible explosion in cartridge storehouse in Bulgaria; 130 persons killed.

7—Launching of submarine torpedo boat, Plunger. Baltimore arbitration conference opened in Brussels.

8—Premier Canovas of Spain assassinated.

9—Prince Ferdinand of Bulgaria visits the sultan of Turkey. Canada appoints administrator for the Yukon gold region.

11—Martial law proclaimed in Oporto, Portugal.

12—Serious difficulty between Austria and Bulgaria. Great hotel near Zurich, Switz., burned.

15—Famous duel between Prince Henri of Orleans and the Count Turin of Paris; the Count of Turin victor. Nearly 1000 gold hunters left Victoria, B. C., for the Klondike.

16—The assassin of Premier Canovas sentenced to death. Many Fall River (Mass.) cotton mills resume. Belgian Antarctic expedition sails from Antwerp.

17—England objects to terms of Greco-Turkish peace treaty.

18—Bomb explosions in Paris and Constantinople.

19—Medical congress begins sessions in Moscow.

20—September wheat passes dollar mark in New York city. Execution

of Angiolillo, assassin of Premier Canovas.

22—Reported suffering among gold seekers at Dyea, Alaska.

23—American syndicate gets important concessions in Honduras and agrees to pay the national debt of that country. Great building trades strike at Vienna, Austria.

24—Salvador adopts gold standard.

25—President Kruger asserts that England has no rights in the Transvaal. President Borda of Uruguay assassinated.

26—Gen. J. P. S. Tobin of Pennsylvania chosen commander-in-chief of the G. A. R.

27—Corea cedes a coaling station to Russia. Marriage of Prince Charles of Sweden.

28—New ministry appointed in Uruguay. Star Pointer paces a mile in 1.59 $\frac{1}{4}$.

30—Commercial treaty signed between Japan and Portugal.

31—Zionist conference at Basle, Switz.

SEPTEMBER, 1897.

1—Mayor of Toulon, France, stabbed.

2—Gen. Andrade chosen president of Venezuela.

3—Striking coal miners at Columbus, O., come to agreement. Jackson-Harmsworth Arctic expedition arrives at London.

4—Death of Marquis de Rochambeau.

6—Yellow fever discovered at New Orleans.

7—Gold discoveries in Venezuela. Derivishes have evacuated Burmah. Governor of New Guinea killed by natives.

8—Twelve killed in railway collision near Emporia, Kan.

9—Sons of Veterans encamp at Indianapolis, Ind. Destructive cyclone coast of Japan.

10—Fatal railroad accident near New Castle, Col. Dynamite explosions near Ferrol, Spain. Brief strike on Metropolitan street railway, New York city. Deputy sheriffs fire upon striking miners at Lattimer, Pa.; 20 killed. King of Siam visits Paris. Costa Rica adopts gold standard. Martial law declared at Hazelton, Pa.

12—Peace made with the insurgents in Uruguay.

13—Yellow fever at Mobile, Ala.

14—Fatal hurricane in Texas.

15—Shipbuilders' strike in England. Lynching of five burglars at Versailles, Ind.

16—Destructive fire at Cabul, Afghanistan. Illinois Federation of Labor indorses free coinage. Attempt to

He has lost his boots, but saved his spurs.

Events of the Year—Continued.

- assassinate President Diaz of Mexico.
- 17—Revolution in Guatemala. Fighting on British Afghan frontier.
 - 18—Preliminary treaty of peace between Turkey and Greece.
 - 19—Earthquakes in Switzerland; also in Turkestan.
 - 20—Emperor of Germany welcomed by emperor of Austria.
 - 21—Attorney-General McKenna declares that the famous section 22 of the tariff law does apply to goods imported through Canada, nor to goods brought in British vessels. National Unitarian conference at Saratoga.
 - 22—Great Britain to inquire into the working of the land acts.
 - 23—Philadelphia to be asked to add \$12,200,000 to debt. Riots among the peasants of Croatia.
 - 24—Fatal landslide near Girgenti, Italy.
 - 25—Treaty ratified between Japan and Chile. Great railroad wreck near Maddur, India.
 - 26—Athens indignant over the terms of the peace treaty with Turkey.
 - 27—Conflict with miners at Hazelton, Pa.; fifty wounded, nine killed.
 - 28—Five miners perish at Rendham, Pa.
 - 29—Spanish cabinet resigns.
 - 30—National irrigation congress, Lincoln, Neb. Greek ministry falls. Victory for Great Britain on the Afghan frontier. Van Wyck nominated for democratic candidate for mayor of New York.
- OCTOBER, 1897.
- 1—Marsh fires in Kankakee valley, Ill. Henry George nominated for mayor of New York.
 - 2—Death of Gen Neal Dow of Maine. Fatal prairie fire near Winnipeg, Man. Nicaragua negotiates a loan. New Greek ministry formed.
 - 3—Belgian miners strike for advance of wages 15 per cent.
 - 4—Sagasta asked to form new Spanish ministry.
 - 5—Death of Francis William, brother of the late Cardinal Newman.
 - 6—Death of Sir John Gilbert, prominent water color painter. New York mayoralty campaign opens. Escape of Evengelina Cisneros from a Cuban prison.
 - 7—Switzerland appropriates \$2,000,000 to buy five railroads.
 - 8—Japan buys 26,000 tons heavy American steel rails. Dedication of Bradley Polytechnic institute, Peoria, Ill.
 - 9—Gen. Blanco takes Gen. Weyler's place in Cuba. Successful beginning of beet sugar factory at Rome, N. Y.
 - 10—\$3,000,000 in gold imported at New York.
 - 11—Death of Judge Strong of North Carolina.
 - 12—Gen. Sherman urges a conference on the seal herd question. Man crosses English channel by a balloon.
 - 13—Russian lawyer chosen as arbitrator of the Venezuelan boundary commission.
 - 14—President appoints J. A. Kasson of Iowa special commissioner on tariff reciprocity. Cuban exiles to be pardoned.
 - 17—Death of Charles A. Dana, editor New York Sun, age 78 years.
 - 19—Death of G. M. Pullman, palace car manufacturer. Servian cabinet resigns.
 - 20—Lord Salisbury states that Great Britain cannot open the mints of India to free silver.
 - 21—Centennial of the old frigate, Constitution, celebrated at Boston, Mass.
 - 21—Sultan of Turkey allows refugees to return to Thessaly. Yerkes observatory dedicated at Chicago. Compact between Austria and Hungary renewed for one year by lower house of Hungarian parliament.
 - 22—Contracts between grain speculators declared illegal by Iowa supreme court. Japan and Greece to arbitrate the Hawaiian question. Death of Justin Winsor, librarian of Harvard university, age 67. Attempted negotiation of the bimetallic commission made public.
 - 23—World's W. C. T. U. meets at Toronto, Ont. New cabinet in Servia. Seal conference began between United States, Russia and Japan at Washington. Bank deposits in Kansas amount to \$40,000,000. The recall of two American missionaries from the province of Aleppo demanded by the sultan of Turkey.
 - 24—Wreck on the New York Central railroad near Garrison; twenty persons killed. Death of Francis Turner Palgrave, English author, aged 73.
 - 25—France decides to tax foreign securities more heavily.
 - 27—\$800,000 fire in St Louis. Death of Duchess of Teck, age 64. Reply of Spain to the United States note on the Cuban question received in Washington.
 - 28—Cuban reforms decided upon by the Spanish cabinet.
 - 29—Sudden death of Henry George, Democratic candidate for mayor of New York. Seal conference decides to limit pelagic sealing.
 - 30—Gen. Blanco, new governor-general

The heart of a fool is in his mouth.

Events of the Year—Continued.

of Cuba, arrives in Havana. Close of the Tennessee centennial exhibition after six months' session. Norway decides to send rescue expedition after Andree, the balloonist.

31—Victory of British troops in the frontier of India. Funeral of Henry George.

NOVEMBER, 1897.

- 1—Union Pacific railway's second mortgage bid in for \$57,564,932.76.
- 2—Elections in twelve states. Iowa, Massachusetts, Ohio and Virginia choose state officers. Partial elections held in the other states. General results show democratic gains. Tammany wins in the Greater New York elections. First mortgage of Union Pacific railway sold to reorganization committee for \$50,637,475.
- 3—Permanent bicycle committees meet to form a trust.
- 4—Opening of Bulawayo railroad in South Africa.
- 6—Wreck of the steamer Idaho on Lake Erie; 19 drowned.
- 8—Installation of lord mayor of London, Horatio D. Davies. Death of Rear-Admiral A. C. Rhind, age 76.
- 9—Philadelphia gas plant leased for 30 years. Count Nishi made foreign minister of Japan.
- 10—Sealing conference between United States, Great Britain and Canada begins.
- 11—Striking mill workers at Manchester, Eng., decide to arbitrate. The Canadian premier, Laurier, confers with Secretary Sherman in regard to the settlement of international difficulties.
- 12—Death of Burgess, the English painter. Election of H. A. Hicks as general master workman of Knights of Labor.
- 13—Austria demands satisfaction from Turkey for insults to Austrian merchant. German warship ordered to China.
- 15—German troops capture four Chinese forts at Kiao-Chau.
- 16—Newfoundland ministry resigns. Postal congress treaty signed by President McKinley. Sealing conference accepts the Canadian proposition and conference ends.
- 17—Decision of the reform citizens' union of New York city to continue.
- 18—Crew of the American schooner Competitor ordered released by Spain. Yellow fever restrictions removed in Florida. \$1,000,000 lumber failure in Wisconsin. Fighting on the frontier of India. Insurrection in the Philippines reported ended. Yglesias re-elected president of Cos-

ta Rica. Mt Holyoke college, South Hadley, Mass., celebrated founders' day, new building dedicated. Destructive floods in Russia.

- 19—Laurier and Davies return to Canada from Washington. Great prairie fire in Texas; 400 square miles burned over.
- 19—Canada consents to joint arbitration commission. Great fire in London destroys \$10,000,000 worth of property. Death of Prof. W. S. Tyler of Amherst college.
- 20—Demand of Russia for payment of the old war indemnity from Turkey.
- 23—Ten lynchers sentenced to death in Mexico. Cuba refuses Spain's proposals of autonomy. West End railroad lease vetoed in Boston. Disgraceful fight in the Austrian parliament. Rebellion in Guatemala reported suppressed.
- 26—Salvation Army congress at New York. Prairie fire in New Mexico.
- 27—Blizzard in northwest, 10 degrees below zero in Montana. Battleship Iowa approved. Speed 13.45 knots. Albanian insurgents fight the Turks near Diakova.
- 28—Building to be erected at Harvard in memory of Phillips Brooks.
- 29—Canadian postage to all parts of British empire reduced to three cents per ounce. Illinois coal strike ended; lost by strikers. Revolution in Guatemala. Autonomy granted to Porto Rico by Spain. Great suffering reported to exist in the Klondike.
- 30—Eleven persons killed by railway accident at Warsaw, Russia. China cedes territory near Hongkong to England. Gas and coke company founded in Boston with capital of \$17,000,000. Reports of great storm on British coast. Queensland rejects the federation bill.

DECEMBER 1897.

- 2—Albanians reported pillaging in Macedonia.
- 3—Yale wins Harvard-Yale debate. Ex-Gov. John W. Griggs of New York appointed to succeed Attorney-General McKenna, who was appointed to supreme court.
- 4—Trolley car collision near Detroit, Mich.; 25 killed and injured.
- 5—Allan line steamer Corean collided with steamer Mobile off Newfoundland banks. Nicaragua canal commission starts to survey the isthmus.
- 6—First session of 55th congress opened at Washington. President's message received. Emperor William of Germany urges the need of more warships.

Rank weeds consume more than a cow.

Events of the Year—Continued.

- 8—Important Cuban victory reported. Hayti agrees to pay indemnity to Germany for illegal arrest of a German citizen.
- 10—Edward H. Phelps died at Springfield, Mass., aged 55. He was a director in the Orange Judd Co., and the Phelps Publishing Co., founder of the latter and of Farm and Home and of the Springfield Homestead. A successful agriculturist, journalist and publisher, one of the originators of modern daily journalism and a newspaper expert, composer and publisher. Pension appropriation bill passed by the House.
- 11—Italy's new cabinet completed, with Rudini as premier. Vote-buying scandals in Georgia.
- 13—First importation of Cuban leaf tobacco since May 10, 1896, arrives at New York.
- 14—Miners reported leaving the Klondike for lack of food. New government department of commerce and industries proposed. Heavy grain shipments made from Boston. Funeral of the mother of President McKinley at Canton, O.
- 17—Pneumatic mail transportation begins at Boston, Mass.
- 19—\$350,000 fire in St. Louis.
- 20—Insurgents more active in the west of Cuba.

AN ODD TRICK—Make with a pen and ink a streak in your hand along the line that goes from the index to the little finger. You ask someone in the company to cover your hand with a hat, which you make him hold; and while he holds it, you bend your hand as if to close it. You open it immediately, and invite him to take the hat away, and the cross is made.

Calendar of Farm Work by Months.

The calendar for the north is intended for the region about 100 miles north or south of Philadelphia and is adopted also, in general, for most sections of New England. The same belt of climate extends inland about halfway across the country, but the calendar is not intended to cover the Rocky mountain region nor the Pacific coast sections, with their numberless climatic variations. The calendar for the south is intended to apply in general to the latitude of Charleston, S C, with notes for the cotton belt and for latitude of Virginia and Kentucky. The seasons are about one week for each one hundred miles north or south of New Philadelphia, Pa, or of Charleston, S C, and seasons are also later in the interior or upon high lands. These points will prove useful for consideration in adapting the table to individual circumstances.

More definite statements as to time of planting, etc, will be found in table of crops elsewhere.

January.

NORTH—The bad weather which usually prevails this month will incline the farmer to stay under cover much of the time. It is a convenient season to foot up accounts, reckon up the results of the last year's business, and lay plans for the coming year. Farm animals and fowls should be looked after with care. There is plenty of time to spend with them and they will repay the trouble. Animals well wintered are half summered. Now is a good time to work up firewood for the year and to put it under cover. If possible, the icehouse should be filled this month. Look out for mice around young fruit trees. Large poultry farms will keep the incubators busy right through the cold weather. Market gradeners haul manure, attend to their green-

There is no little enemy.

houses and market their root and greenhouse crops. Much celery is taken from the pits and sold this month. Lettuce sown under glass will come to market in April; radishes in March. Orchard trees may be pruned on warm days; asparagus and rhubarb should be topdressed if not done already. Order seed catalogs. Social life in winter should be as active as the circumstances permit and young people should be encouraged to keep up neighborhood parties and reading circles.

SOUTH—Following is the most important out-of-door task. During bad weather strip tobacco in barns. Oats may be sown at any time during this month that is seasonable for such work. Fences need repairing and should be attended to. Where wood is burned, that should all be prepared by now for the season's use. See that all tools are in working order. Get some way to have water handy and abundant; to this end clean out ponds, make new ones, clean out cisterns and see that they are in good repair and have them filled with water this month and next. Grapevines may be pruned and most all the shrubs about the yard tied up and put in shape. Early chickens pay well and it is not too early for a few hens to be set, provided the chicks receive extra care.

Early turnips may be sown. Hardy crops planted last fall may be cultivated. Fall-sown lettuce may be transplanted. Earth up celery. Sow onions, radishes and turnips. Topdress asparagus beds. Sow peas, early cabbage, lettuce. Cultivate cauliflower and broccoli. Onion sets may be put out. Endive ready for market. Time to sow beets, spinach, parsley, carrots, kale, collards. Put out onion sets. In the far south the "old twelve days" (the days between Christmas and Old Christmas or Epiphany), are regarded as an excellent time for starting a spring garden.

February.

NORTH—Wood cutting and manure hauling are in order this month. "As the days begin to lengthen, the cold begins to strengthen," runs the proverb, and February contains so much disagreeable weather that indoor work is especially desirable; the poultry raiser and dairy farmer will find plenty of it in providing exercise, clean, warm quarters and stimulating food for their charges. Early lambs and their dams should receive the best of care. Setting hens may be started and the incubator run in full blast. Fine manure is needed for the early crops and the heap should be pulled over and mixed. Adding water will check overheating. Engage farm labor early. Trim trees. Cut scions. Order nursery stock early. Seeds may be sown in window boxes. Look out for parasites on house plants. Market gardeners may get the hotbeds ready for cabbage, lettuce, radishes, dandelions and parsley. Earliest cabbage may be started this month. The greenhouse will need close attention. Markets should be carefully watched to take advantage of best prices for whatever products remain in stock. Tools, seeds and fertilizers should be provided and made ready before the spring rush begins. The last of the month, tomato, pepper, cauliflower, eggplant, etc., may be started under glass. Lettuce sown now will be ready to sell in May.

SOUTH—Following is still in season. Continue stripping tobacco. Sow oats and clover. It is time to plant Irish potatoes. Plow land, especially turf land, for corn or cotton. Towards the last of the month plant some corn. Look well after stock. Cattle are more likely to suffer now than earlier in winter from lack of care. Cultivate the fruits, if good results are wanted, and keep up all through the growing season.

A good wife lost is God's gift lost.

Time for later plantings of the hardy vegetables. Plant peas for succession, early and later kinds. Squashes and melons may be sown, also sweet corn. First crop potatoes may be started. Sow carrots, radishes, parsnips, spinach, salsify, beets. Asparagus beds should be attended to. Early sown cabbages and lettuce transplanted. In favorable localities, beans and even corn may be sown. It will probably be necessary to protect these a few nights, but they pay for the extra trouble. A popular superstition makes St Valentine's day the best time for planting nearly all vegetables. As far north as Kentucky and Virginia, celery and tomatoes are sown for plants about the middle of the month.

March.

NORTH—The uncertain weather of March calls for unceasing vigilance and a variety of tasks. Winter work is still in order, such as wood cutting, carting and overhauling manure, painting and repairing tools, carts and machines, mending harnesses, stocking up with seeds and fertilizers, marketing produce, etc. In New England, tomato, pepper, cauliflower seeds, are not sown under glass until the first of this month, and very little outdoor planting is done, but in the latitude of New York and Pennsylvania, beets, cabbage, carrots, parsnips, onions, peas, radishes may often be sown in open ground, and asparagus or rhubarb transplanted. Prick out tomato seedlings in flats. Clover seed may be sown on the last light snowfall. For the earliest hardy crops the ground should be planted as soon as it can be worked. Stuff growing under glass must be watched and guarded from frost. Lettuce, cabbage and cauliflower thrive at a temperature of 60 to 70 degrees, but tomatoes prefer 70 to 80 degrees. Cabbage and cauliflower sown last month should be transplanted when four leaves show. Tree, vine and bush pruning and fence mending is in order. Clean the lawn. There is probably a lot of produce in the cellar which needs to be sorted and the rubbish removed and the best taken to market. The evenings are still long and may be put to good use. Read, plan, study catalogs.

SOUTH—Harrow and plant corn. Sow wheat and clover. Re-bed cotton land and plant cotton. Plant sweet potatoes, unless they have already been planted in a hotbed. Plant rice, also millet, sugar cane, sorghum, kaffir corn and other things of that kind. Sugar cane should be planted early in this month. Plant watermelons and cantaloupes, squashes, in the more southern localities. Early planted corn and vegetables need cultivation. Fruit trees may be set out.

Peas and beans for succession may be planted. Hardy vegetables, including onions, leeks, turnips and potatoes, and other vegetables of which enough were not sown last month. Mustard for salad should be sown every two weeks. Parsley and tomatoes may be sown in the open ground so hotbed plants may be set in the field. Sow peppers. Cabbages and collards may be transplanted, also tomatoes and beets. Watermelons, canteloupes, muskmelons, squashes, pumpkins and cucumbers may be sown in light soil. Beets, turnips, etc, sown last month should be thinned and cultivated. Sow early celery and spinach. Strawberry beds may be set out. In the latitude of Kentucky and Tennessee the busy season is just beginning and gardeners are sowing the earliest vegetables about the middle of the month, including celery, parsley and parsnip. In this latitude potatoes may be sown during the last of the month. Sow eggplant seed under glass.

He that drinks fast, pays slow.

April.

NORTH—Spring work comes with a rush in April. There is plenty to do on all farms, although the exact time to perform certain details varies much with soil and location. It does not pay to work heavy land too soon, but light, warm soil may be planted as soon as plow can be run. Fall-plowed land will be in much better condition now. If no fine manure has been prepared during winter, the heap must be worked over before use. A little nitrate of soda in the drill is a great help for early crops. The early vegetable escapes the low prices. Tree and vineyard pruning may still be done. Grafting may be done when the buds begin to swell, or later. Currant and gooseberry cuttings may be started now if not done in the fall. The poultry keeper should strive for early hatched chicks, in order to get plenty of pullets ready to lay in fall and early winter. Dairymen will find ensilage a good food to prepare cattle for pasturage. Market gardeners are busy with planting; in the more northern sections nothing is started outdoors until this month. Hardy vegetables, such as beets, carrots, turnips, onions, spinach, celery, parsnips, radish, cabbage, may be planted. In advanced localities and where cold weather is not likely, sow bush beans, cress, cucumbers, potatoes, herbs, tomatoes. Sow a succession of early and late peas to keep up the supply. The covering of the strawberry and spinach beds should be removed early in the month. Market earliest crops. Hotbeds should be looked after and the early crops of lettuce and radishes replaced with other crops. Lettuce and early cabbage may be transplanted to the open field. The flower garden should be started early with hardy seeds like sweet peas, candytuft, asters. Start horses into hard work by degrees and look out for sore spots under the harness. At the beginning of the warm season make a raid upon the vermin in the poultry houses.

SOUTH—Corn planting time, in the middle south. Sow other crops in season. Finish cotton planting. Put out early sweet potato "draws" and vines, and continue putting these out, when the weather suits, until July. Plant ground peas—during the "dark nights," the moon theorists say. Cultivate all crops and plant for a succession of vegetable crops. Replant corn where necessary and thin it. Cowpeas for hay may be planted. Plant peanuts. Sow cabbage in the seedbed or for bedding plants, also cauliflowers and broccoli. Sow lettuce for succession. Sow celery. Sow more lettuce, melons, cucumber, etc, using well-prepared compost. Not too late to sow okra. Early sown root crops are now ready for thinning and cultivating and more may be sown for later use. Late crops—leeks—may be sown. Pearl onions ready for market. Transplant early sown cabbages. Cultivate those set out in February. In the latitude of Kentucky and Virginia, early vegetables may be sown, such as beets, carrots, onions, peas, potatoes. Sweet corn may be sown in favorable locations, also beans.

May.

NORTH—Even if work has been kept well in hand during the previous months, there will be plenty to do in May, and the success of the year depends upon present vigor. If all the hardy vegetables have not been planted, they may be sowed now for later ripening. Sow Brussels sprouts, peas for succession, spinach, lettuce, radish, onions, beets, cabbage, cauliflower, followed by early beans, early corn and beans for

Take counsel in wine, but resolve in water.

succession. Then pole beans, including limas, main crop corn, squashes, melons, celery, cucumbers, lettuce. Such crops as are growing will need cultivating and weeding. Plant plenty of corn for fodder. Strawberry transplanting should be done as early as possible, better in April than in May. Asparagus and rhubarb must be marketed. Tomato, pepper and eggplants may usually be set about the middle of the month. Fruit trees must be sprayed and grafting, if not done before, should be attended to at once. Before turning cattle into pasture, see that fences and walls are secure.

SOUTH—Corn planted last month will be ready to cultivate. Plant more corn if wanted for late crop. Prepare land and plant tobacco. In the cotton regions, side cotton, hoe cotton and chop to a stand. Some farmers put no fertilizers on corn until this month, applying at the first plowing. Make an earnest warfare against grass or it is sure to get ahead now. "A dry May makes a good crop year," old farmers say. Plant sweet potatoes and late peanuts. Sow winter cabbage, more lettuce and radishes, also melons, squashes, cucumbers, etc. Plant late varieties of corn for succession. Sow seed for late crop, peppers and tomatoes. Sweet potatoes may be set out. If crops begin to need irrigation, water should be supplied if possible. Plenty of pole beans should be supplied at this time. Further north it is not best to plant tender vegetables, like cucumber, melons and squashes, before about the middle of this month, nor to transplant tomatoes, peppers, etc, much before that time.

June.

NORTH—This is a month of weeds and the cultivator must be kept on the move; one hoeing is better than three waterings. Sweet corn must be planted every ten days to keep up a succession, beginning with the earliest varieties, such as Corey and Minnesota. Look out for grass and weeds among asparagus. Thin beets, transplant to the field celery, cabbage, leeks, broccoli. Sow more cucumbers. Late plantings of fodder corn will often mature a good crop on rich land. Plant stock beets. Early crops should be promptly cleared away and the space planted with celery, cabbage, strawberry, cucumber, Hungarian or other good second crops. On rich, early land these crops may be sown quite late. Insects are getting plenty, requiring much watchfulness and Paris green. Strawberries should be irrigated if possible while the fruit is filling out. Upon most farms the haying season begins in June. Better have a few extra parts of machines on hand to replace breakage. Grass should be cut while in bloom. Early vegetables and fruit must be marketed and extra help will be needed. The young chickens should not be neglected in the rush of work. When the old hens quit laying, sell most of them off. Watch the bees and have hives ready for new swarms.

SOUTH—Finish planting tobacco, continue cultivating corn. Harvest wheat. Plant chufas and cowpeas. Plow all crops. Cut oats and shear sheep. Ship melons. Corn is usually laid by this month and cowpeas should be planted. They are a wonderful improver of the land and add to the crop produced without much injury to the corn. Any land not otherwise in use or that is not to be soon, should be planted in peas if it is possible, even if no other use is to be made of them than to keep the land busy. This is a good month to plant sweet potatoes. Early Irish potatoes should be dug and those wanted for late

Great famine, when wolves eat wolves.

planting should be spread out in partial light to "green." Growing crops will require much attention this month. Kill the weeds and keep the ground stirred. If the season is not too dry this month, vegetables will do fairly well. Plant beans, tomatoes, melons, squashes, late tomatoes, etc. Transplant cabbage and cauliflowers.

July.

NORTH—Make hay while the sun shines, is the rule in both the literal and figurative sense this month. Early cut hay is best and lowland or swamp hay can usually be obtained best early in the month. Grass land may be plowed and sown to Hungarian. Early vegetables are to be marketed. Rutabagas are a good late second crop. Weeds are plenty and require attention even when other tasks crowd the time. Small fruit is ready for harvest. Plant or transplant beets for winter use, transplant late celery, sow endive and turnips. Rutabagas, transplanted after potatoes or peas, do well. Poultry will need less attention this month if given a good range. The hen is a good insecticide.

SOUTH—Harvest and thresh oats and wheat if not done last month. Ship Le Conte pears. The cultivation of cotton is generally completed during this month, and the latter part of this and the first of next are times of comparative leisure for most farmers. It is still an excellent time to plant sweet potatoes and from now on, the "vines" instead of "draws" are used. Prepare the ground thoroughly, because it holds moisture better and the vines grow more readily and produce better potatoes. This is an excellent time to repair buildings, sheds, etc., for winter and to get out material for new buildings to be put up this winter. This is usually a dry season and careful attention should be given to stock to see that it does not suffer for water. The pastures are apt to be short, too, and stock must not go hungry if good results are wanted. Cowpeas sown early for hay should be cut. This will give them plenty of time to grow into an excellent crop for cutting again in October. The season is usually too dry for planting garden vegetables successfully, but if thought best, sow carrots and parsnips, endive, turnips, white potatoes, pickling cucumbers. A crop of rutabagas is at least desirable for feeding stock. Transplant cabbage, cauliflower, broccoli, leeks and early crop celery. Spinach sown now will grow if not in too dry ground. The difficulty of starting crops at this season renders it important to get good seed.

August.

NORTH—Upon the average farm, August is the easiest of the warm months, haying being over. Planting is mostly confined to turnips, forage crops, such as barley, and to seeding down favorable pieces. August is bush month, cut them short. Drains may be laid, ditches dug and wells deepened. In the market garden department, there is plenty of work marketing vegetables and looking after and keeping the soil stirred. Spinach for fall marketing may be sown now. Spraying is still needed. Consult our spray calendar. Begin to earth up celery and set more, plant out endive. Late peas and lettuce may be sown, also China winter radish and the late turnips, then the root crops. Pick, ripen and market early pears. Market other early fruit. New shoots of blackberries may be pinched back. Keep the weeders in

Tongue double brings trouble.

motion. Some time during August a vacation, including a trip away from home, is very desirable.

SOUTH—Attend to tobacco crop. Fallow for wheat. Pull fodder, and then cotton picking begins. Gather the first cowpeas. Plant the Unknown pea and other late varieties. This is usually the summer month of most leisure with farmers. Plant Irish potatoes early for fall crop well to the south; sweet potatoes may still be planted early in the month and do very well if the season is favorable. Fodder should be secured and put away for winter use. Cotton picking begins during the month and then everything gives way for that. See that stock has plenty of food and water. Sow plenty of turnips, especially winter turnips, where chickens can have free access to them. In the market garden, much depends on the season. If there is sufficient moisture for the ground, sow cabbage for latest crop. Cauliflower, collards, carrots, squashes, cabbages, radishes and beets may be sown for succession, also lettuce. Plant onion sets.

September.

NORTH—Harvest time is a period of hard but cheerful tasks. Corn and apples are to be gathered and many kinds of vegetables taken to market. Poultry and swine should be pushed with liberal feeding to lay on fat during the cool autumn weather. Grass land may be seeded down, using some of the good mixtures elsewhere recommended. Rye may be sown on vacant land if desired. Continue earthing up celery. Harvest onions, beans, tomatoes, squashes, melons, cucumbers. Florists should get their flowering plants under glass. Carnations are very tender. Violets are hardy and may be left out till after light frosts. Greenhouses should be repaired and put in order for cold weather. Don't forget the agricultural fairs.

SOUTH—House tobacco and keep the teams and plows busy fallowing. Pick cotton. Sow fall oats, rye, turnips, cabbage and collards—also beets, lettuce, radishes, etc, for winter use. Harvest early corn, peanuts, cowpeas, for seed. Carrots may be sown for late crop. For succession, sow lettuce, winter radishes, cabbage for spring. Sow turnips, cultivate celery plants. Potatoes planted last month. Transplant cauliflower and cabbage. In Virginia, start early greenhouse crops, such as lettuce. Not too late to sow beans.

October.

NORTH—Harvest season continues, including apple picking, corn husking, potato digging, gathering root crops. Cut the ensilage corn in the glaze. Celery should be completely banked up, for from ten to twenty days, to bleach it. Greenhouses, hotbeds, henhouses, barns, should be put in order as soon as possible. Asparagus and rhubarb may be topdressed. Spinach may be sown.

SOUTH—Sow wheat. Harvest corn. Cotton picking continues. Gather and house corn, also ground peas, chufas and cane for seed, and grind cane. Dig, sort and store sweet potatoes and gather peas. Put out cabbage and collard plants. Cultivate crops planted last month. Plant out onion sets. Winter spinach may be sown. Earth up celery and set out more. Sow radishes and other succession crops. Topdress asparagus and transplant strawberries, cabbage and cauliflower. Start cucumbers in greenhouses.

He that lieth down with dogs shall rise up with fleas.

November.

NORTH—The outdoor season is drawing to a close and work of harvesting still undone should be hurried to a finish. All kinds of root crops, cabbages and onions, should be put in a safe place. Bleaching celery should be finished. Parsnips and horse-radish may be left in the ground until spring, but a portion should be dug for winter use. Clear off stones, rocks and stumps. Trees and shrubbery may be transplanted. Grass seed and winter rye may be sown before the ground freezes. Fall plowing is always in order.

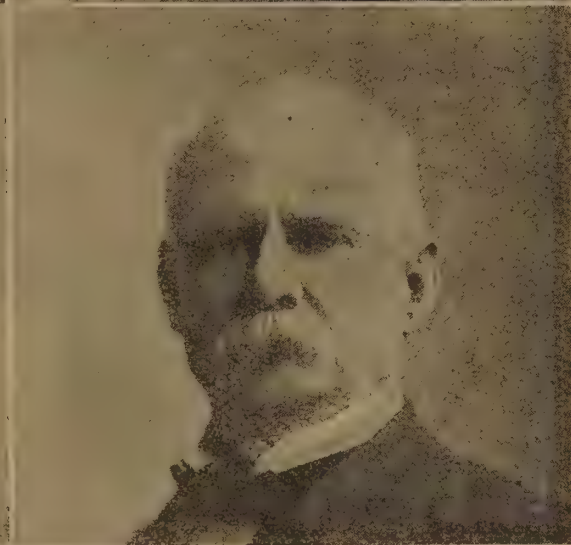
SOUTH—More plowing. Prepare for winter. Finish picking cotton. Put out onions. Break up land for another year. Gather Kieffer pears. Cotton picking still continues to take more or less time during this month. Ginning cotton, clearing up and putting away seed are in order. This is an excellent month to sow winter oats or wheat or rye for winter pasture, and for the grain next summer, or to be turned under. One of the great difficulties at the south is that full use is not made of time and land during the winter months. The land sadly needs a cover crop, both to take up and hold the plant food as it becomes available and to check washing of the surface soil. Neither the man nor his land will improve by lying idle. This is an excellent time to set out fruit trees of all kinds. Sow early peas for spring use. Set out more cabbage and onion sets. Give celery a final earthing up for bleaching. Latest radishes may be sown. Lettuce may be started in hotbeds or greenhouses.

December.

NORTH—The farm will soon settle into the winter routine of the care of stock with wood cutting, hauling and sawing, marketing crops and carting manure, as extra tasks. Some work can still be done on the field. Protect spinach, kale and strawberries with a light covering where needed. Prepare compost and attend to the hotbeds. Transplanting trees, ditching, etc, may be done so long as the weather permits. During bad weather, hotbed mats may be made, sashes mended, tools repaired and the like. Every farmer needs to spend some time in reading in order to keep up with the times.

SOUTH—Strip tobacco. Get ready the supply of wood for cold weather. See that the live stock are snugly housed. This is still a good month to sow oats for much of the south. Land should be cleaned up where it needs it and got ready to plow as opportunity favors. There is always some building or improving that may be done. Make things more convenient for next year. Fruit trees may still be planted and most varieties, except peaches, may be pruned and put in shape. Favorable time for pruning trees and vines and for setting out orchard trees. Plant more onion sets. Earth up and bleach celery. Sow cabbage for winter heading. Transplant October-sown plants. Peas may be sown for spring use.

A CHAMELEON LIQUID—Pour extract of logwood into a glass of water, which will give it the color of wine; pour this red water into another glass, previously rinsed with vinegar, and it will become yellow; empty the water from the glass, all except three fingers, and upon this pour fresh water, until it becomes the color of gray wine, which you can change into the color of vinegar or muscat wine, which, by pouring on more water, changes to the color of fine white wine, and by adding a couple of drops of ink it becomes a beautiful bluish gray.



President—William McKinley of Ohio.
Ex-President—Grover Cleveland of New York.
William J. Bryan of Nebraska.

Vice President—Garrett A. Hobart of New Jersey
Ex-Vice President—Adlai E. Stevenson of Illinois,
Arthur Sewall of Maine.



John Sherman of Ohio, Secretary of State.	Russell Alger of Michigan, Secretary of War.
Lyman J. Gage of Illinois, Secretary of the Treasury.	John D. Long of Massachusetts, Secretary of the Navy.
Joseph McKenna of California, Attorney General.	James D. Gary of Maryland, Postmaster General.
Cornelius N. Bliss of New York, Secretary of the Interior.	James Wilson of Iowa, Secretary of Agriculture.



AMERICAN GOVERNORS.

Josiah Grout, Vermont.

Roger Wolcott, Massachusetts.

Lorrin A. Cooke, Hartford, Connecticut.

Charles Warren Lippitt, Rhode Island

George A. Ramsdell, New Hampshire.

D. H. Hastings, Pennsylvania.



AMERICAN GOVERNORS.

Daniel L. Russell, North Carolina.
William Y. Atkinson, Georgia.
William D. Bloxham, Florida.

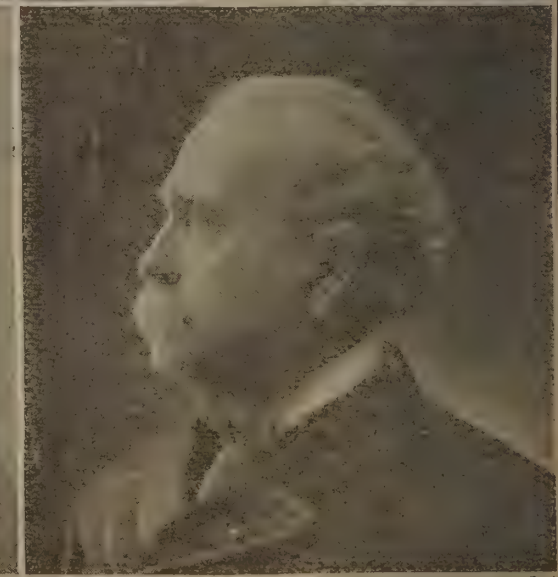
Charles T. O'Ferrall, Virginia.
Joseph E. Johnston, Alabama.
Murphy J. Fester, Louisiana.



AMERICAN GOVERNORS.

Chief Mayes, Cherokee Nation.
Daniel W. Jones, Arkansas.
Silas A. Holcomb, Nebraska.

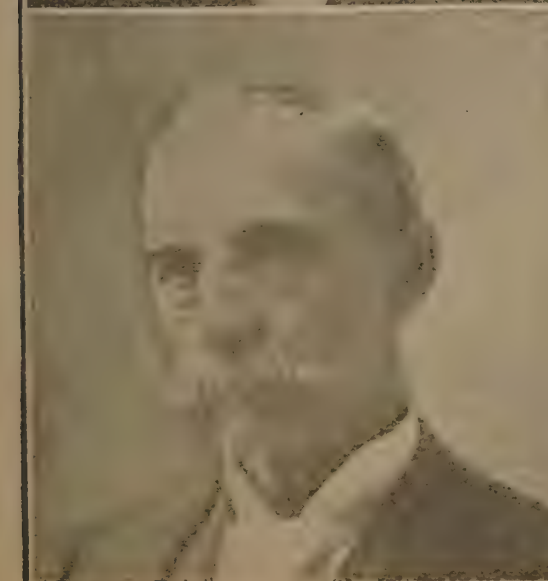
Lon V. Stephens, Missouri.
W. C. Renfrow, Oklahoma.
John W. Leedy, Kansas.



AMERICAN GOVERNORS.

Hazen S. Pingree, Michigan.
David M. Clough, Minnesota.
W. O. Bradley, Kentucky.

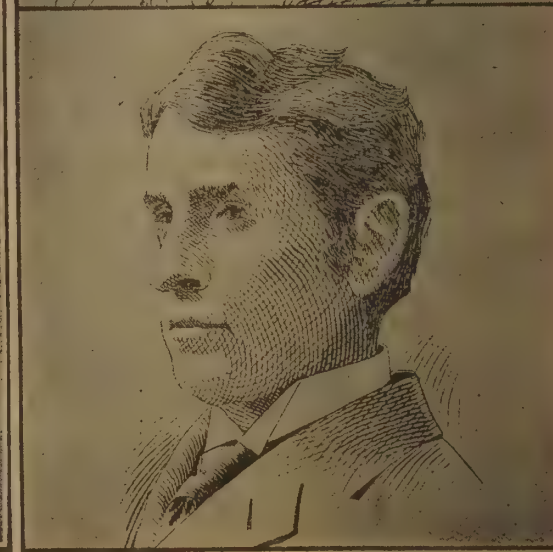
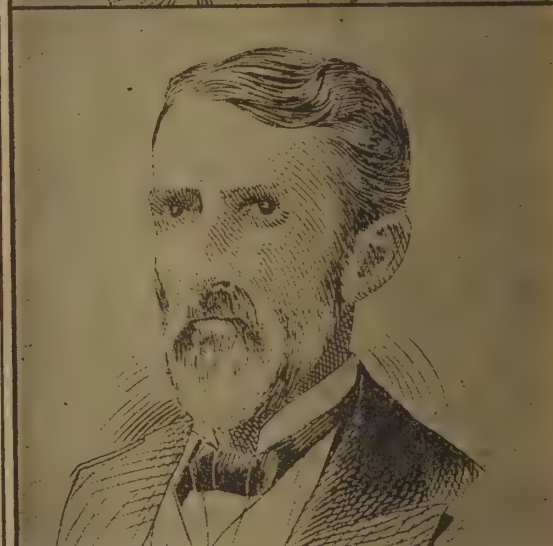
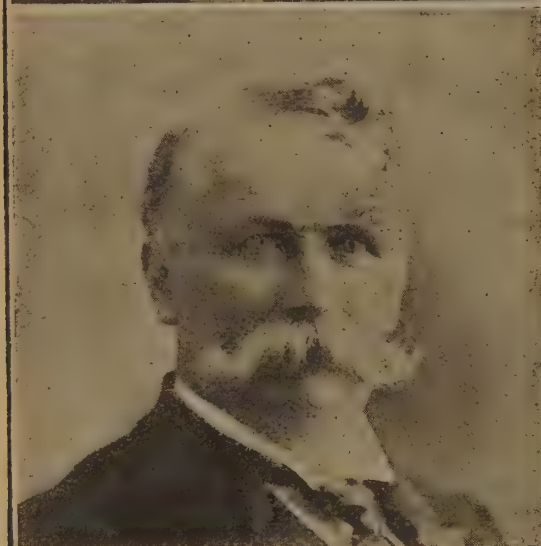
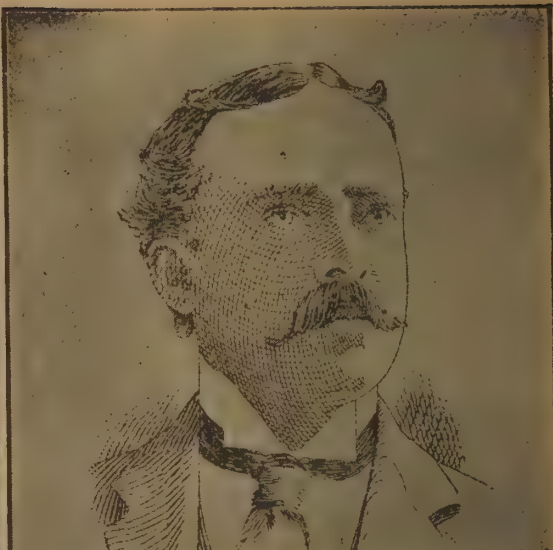
Robert L. Taylor, Tennessee.
Andrew E. Lee, South Dakota,
F. M. Drake, Iowa.



AMERICAN GOVERNORS

Alva Adams, Colorado.
William D. Richards, Wyoming.
J. R. Rogers, Washington.

James H. Budd, California.
Heber W. Wells, Utah.
James Sheakley, Alaska.



AMERICAN GOVERNORS.

Lloyd Lowndes, Maryland.
Asa S. Bushnell, Ohio.
James A. Mount, Indiana.

Miguel A. Otero, New Mexico.
Edward Schofield, Wisconsin.
John William Griggs, New Jersey.

OUR OWN COUNTRY AND GOVERNMENT.

THE UNITED STATES.

The supreme work of modern Anglo-Saxon energy is the United States. To a people of the most vigorous stock in the world has been given the greatest opportunity ever granted to man. Strong, hardy races have peopled the country with their most ambitious sons and daughters, who have found here full scope for all their powers. The raw materials of greatness were at hand in plenty, and the right people came to use them.

As the century draws near its end, and the country, emerging from a time of business depression, begins to enjoy renewed prosperity, the fact becomes evident that with resources and energy given, the element of time is hardly needed, so rapidly has the nation grown. The solid foundation itself prophesied greatness. A race already energetic was stimulated by a climate which made hard work seem natural. To them was given, safe from interference by stronger nations, the best half of the continent, all adapted to support life in health and comfort; a country so extended that the sun rises at Eastport before it sets on the islands of the far Alaskan coast, a country, large enough to make sixty countries like England and Wales, and so rich that the older nations have already been surpassed in commercial progress although, comparatively speaking, American industries have merely begun their development.

Agriculture alone, if fully developed, could support hundreds of millions of people. The farm lands equal in area sixteen New Englands, valued with improvements at one-fifth the entire national wealth, with a field as large as Arkansas devoted to wheat alone and producing a crop of grain two and one-half times the crop of any other nation. With this great staple product the United States supplies to a great degree the staff of life for two continents. Our country not only helps to feed the world but clothes it also; growing four-fifths of the entire product of cotton. The mineral wealth is the most abundant and varied belonging to any nation. Half the world's supply of gold and silver is produced here. The copper region about Lake Superior is the richest in the world. Large masses of almost pure copper are found and the total output is one-half that of the entire world. Lead is also very abundant. Iron is found in unlimited quantities in no less than twenty-three states. Other metals abound, yet a large part of the mining regions is wholly undeveloped. The United States ranks first in silver product, second in gold and coal, first in copper and steel. No other country is so well endowed with fuel supplies. There is coal enough near the surface to last for centuries and we mine one-third the world's

Development of Agriculture, Industry, Population and Wealth in the United States.

The following table is compiled from official sources, mainly the United States census. From the official values returned for 1870, we have deducted one-fifth to compensate for the depreciation in paper money at that time, so that the values here printed for 1870 are on the same basis as for the other dates. The percentage increase (or decrease) from 1860 to 1890 is shown in the last column.

POPULATION, IMMIGRATION, MONEY, DEBT, ETC.
Last three figures (000's) omitted except when marked *a*.

	1890	1880	1870	1860	Increase % 1860-'90.
Population,	62,622	50,156	38,558	31,443	99
Immigration,	15,867	10,691	7,736	5,285	200
Wealth,	\$65,037,091	\$43,642	\$24,054,815	\$16,159,616	302
Wealth, per capita, <i>a</i> ,	\$1,039	\$870	\$624	\$514	102
Savings bank deposits,	\$1,524,845	\$819,107	\$439,899	\$149,278	921
Savings banks, per capita, <i>a</i> ,	\$24.35	\$16.33	\$11.41	\$4.75	413
Number of depositors,	4,259	2,336	1,631	694	514
National debt (interest bearing), <i>c</i> ,	\$725,453	\$1,723,993	\$2,046,456	\$2,381,530	*70
Debt, per capita, <i>a</i> ,	\$14.22	\$38.27	\$60.46	\$70.05	*78
Gold production (dollars),	\$32,845	\$36,000	\$50,000	\$46,000	*28
Silver production (ounces),	54,500	30,320	13,000	116	319 <i>d</i>
Av. value silver, per oz., <i>a</i> ,	\$1.046	\$1.145	\$1.328	\$1.352	*29
Money in circulation, per capita, <i>a</i> ,	\$22.82	\$19.41	\$17.50	\$13.85	64
Imports,	\$789,310	\$667,995	\$435,958	\$353,616	123
Exports,	\$857,228	\$835,638	\$392,771	\$333,576	160

a Full figures given, *c* 1865, * decrease per cent, *d* compared with 1870.

GROWTH OF AGRICULTURE, MINING, RAILROADS, ETC.
Last three figures (000's) omitted, except when marked *a*.

	1890	1880	1870	1860	Increase % 1860-'90.
Total number of farms,	4,565	4,009	2,660	2,044	123
Av. size of farms, acres,	<i>a</i> 137	<i>a</i> 134	<i>a</i> 153	<i>a</i> 199	*45
Total acres in farms,	623,219	536,082	407,735	407,213	53
Percentage of improved land,	<i>a</i> 57	<i>a</i> 53	<i>a</i> 46	<i>a</i> 40	39
Total valuations,	\$15,982,268	\$12,104,002	\$11,124,959	\$7,980,493	100
Value of land, fences and buildings,	\$13,279,253	\$10,197,097	\$9,262,804	\$6,645,045	99
Value of implements and machinery,	\$494,248	\$406,520	\$336,878	\$246,118	101
Value of live stock on hand June 1,	\$2,208,768	\$1,500,385	\$1,525,276	\$1,089,330	102
Estimated value of farm products, <i>b</i> ,	\$2,460,107	\$2,212,541	<i>e</i> \$2,447,539	—	—
Horses, number,	14,969	10,357	7,145	6,249	139
Cattle, total number,	51,364	35,926	23,821	25,620	100
Swine, number,	57,410	47,682	25,135	33,513	713
Sheep,	35,935	35,192	28,478	22,471	59
Production of wool, lbs.,	276,000	232,500	162,000	60,365	357
Cotton, bales,	8,652	6,606	4,347	3,849	125
Eggs, doz., <i>c</i> , <i>d</i> ,	819,723	456,911	—	—	—
Honey, lbs., <i>b</i> , <i>d</i> ,	63,897	25,743	14,703	23,366	173
Barley, bu.,	78,333	43,997	29,761	15,826	458
Indian corn, bu.,	2,122,328	1,754,592	760,945	838,793	153
Oats, bu.,	809,251	407,859	282,107	172,643	368
Rye, bu.,	28,421	19,832	16,919	21,101	13
Wheat, bu.,	468,374	459,483	278,746	173,105	704
Hay, tons harvested,	66,831	35,151	27,316	19,084	250
Tobacco, lbs., <i>f</i> ,	488,257	472,661	262,735	434,209	12
Potatoes, bu., <i>f</i> , <i>g</i> ,	217,546	169,459	143,337	111,149	95
Hops, lbs., <i>f</i> , <i>g</i> ,	39,171	26,546	25,457	10,992	256
Value market garden products, small fruits, <i>f</i> ,	\$29,033	\$21,761	\$20,719	—	—
Products of mining value,	\$587,231	\$369,319	\$152,559	—	—
Railroad mileage,	167	93	53	31	438

a Full figures given, *e* includes additions to stock, *b* not included in census reports previous to 1870, *c* not included in census reports previous to 1880, *d* not included in census reports of 1860, *f* for calendar year preceding census year, *decrease %. *g* No report as to acreage previous to census of 1880.

The path of duty is the path of safety.

entire production; the value and extent of the forests are hardly yet appreciated, covering as they do five per cent of our land area, while the stores of oil and natural gas are of vast extent.

The United States is in reality a series of nations within a nation, and the trade between the states is enormous, greatly surpassing its foreign commerce, and amounting to six times the extensive foreign commerce of Great Britain. The Pennsylvania railroad alone, carries more freight than all the British merchant vessels. About one-tenth the value of our total annual production of ten billions of dollars is sent abroad. The exports consist largely of raw material, as cotton, iron and provisions; the imports are mostly manufactured products.

To transport the enormous bulk of the nation's products, we have more miles of railway than exist in Europe, Asia and Africa, and more than six times as many miles as any other nation, and these railroads earn every year \$5 to every person in the country.

The rivers, lakes and canals likewise facilitate trade. One-third the fresh water of the globe is contained in the great lakes. The Mississippi river is of larger volume than all the rivers of Europe, excepting one, taken together, and its navigable length with that of its tributaries would if extended reach four-fifths around the world. Manufacturers are favored by the abundance of coal and of water power, and by the great supply of raw material. Cotton, wool, hides, metals, lumber are near at hand ready to be worked up by the most intelligent, ingenious and effective operatives in the world.

The United States is the leading nation in manufactures. Our workmen produce more and are better paid than any others.

All these factors have helped to make the United States the richest of nations, until the entire wealth of the country is equal to six times the value of the money of the entire world, and if divided equally among the people of the United States would give each one about a thousand dollars. One person in fourteen has a savings' bank account and the average deposit is \$371.36 for each depositor. The building and loan associations have one member to every eight families, indicating that those without homes are fast providing them. In less material lines of progress the showing is equally significant. There are nearly 4000 public libraries, while the school libraries alone, contain more books than all the public libraries of Europe. Nearly half the world's newspapers and magazines are in the United States, nearly half the number of letters mailed annually and nearly half the Sunday school pupils of the world, while one-third the entire population are members of churches. More children and a larger proportion of the total number attend the schools and are given a longer term of study, than those of any other country.

How We Are Governed.

The will of the people as limited by the federal constitution is the mainspring of power in the national government, acting through the president, congress, and the supreme court.

The president is the executive, chosen once in four years. No president has been allowed more than two terms, but there is no law against a third term. He is chosen by electors, of which the people in each state choose by direct popular vote as many as the state has members of both houses of congress. The electors of each state meet, cast their

Prevention is the best bridle.

vote, and send the result by a committee of their members to the president of the senate at Washington. The votes are counted by tellers and the result declared by the president of the senate in the presence of the two houses of congress. The person receiving the majority of all votes cast by all the states together is president. In case no candidate for president shall receive a majority of the entire number of electoral votes, the three highest on the list are to be submitted to the house of representatives for choice, each state being entitled to one vote, and two-thirds of the states being the required quorum. In case of failure to so select before the 4th day of March next following, the vice-president must act as president. The same rule is provided in regard to vice-president, except that the selection must be made from the two highest on the list, and referred in like manner to the senate of the United States for similar action.

The president carries out the laws passed by congress. He commands the army and navy. He fills, with his appointees, the offices of government not otherwise provided for, including cabinet, foreign representatives, judges, but always with the agreement of the senate. He has power to grant pardons, except in cases of impeachment. The presidential elections are held on the first Monday in November every leap year, and the successful candidate takes office on the March 4th next following.

The president's cabinet comprises eight members, given in the order of their succession to the presidency in case of death or resignation of president and vice-president, as follows: Secretary of state, secretary of the treasury, secretary of war, attorney general, postmaster general, secretary of the navy, secretary of the interior, secretary of agriculture. These eight are appointed by the president with the consent of the senate and they constitute his political advisers besides being the heads of their respective departments.

Congress makes the laws. The senate branch numbers 90; two from each state and serving six years, the choice being made by the state legislatures. The vice president of the United States is the presiding officer of the senate, and is elected in the same manner and at the same time as the president. Members of the house of representatives are elected by the people, the number depending on the population of the states. They are chosen for two years.

Any member of either branch of congress may introduce a bill, which is first referred to a committee, and when reported by the committee, acted upon by the members. All bills pertaining to taxation or expenditure originate in the house. When a bill has passed both branches, it is placed before the president. If he signs it or fails to return it within ten days, it becomes a law. If the president objects to the bill, he may veto it, and in that event the bill cannot become a law unless congress passes it again by a two-thirds majority.

The supreme court holds the final judicial power. Its nine members are nominated by the president for life. They interpret the constitution, settle disputes between the states, or between the states and the government, and decide upon cases arising under national laws, also other cases that may be appealed to the United States supreme court. There are nine United States or federal circuit courts and sixty district courts, besides courts of claims and local courts in the territories.

The expenses of the national government are met without any

All things belong to the prudent.

direct tax upon individuals. Chief sources of revenue are customs or tariff, internal revenue, sale of public bonds and miscellaneous receipts. From these sources the government received for the ten years ending 1890, an average of \$371,204,582.21. This amounts to \$5.93 for each person per year.

EACH STATE GOVERNMENT

is modeled after the federal or national government, each having its own constitution, a legislature of two houses, a governor and council and a judicial system. State senators and representatives are chosen by popular vote, likewise the governors. State legislatures can act upon all matters except those general ones which the federal constitution reserves for the national government. Except in a few states the governors have a veto power similar to that of the president. In a general way the states have power over all local matters. Expenses are paid by taxes on property. Certain of these taxes, like those on corporations and inheritance taxes, and certain license fees, are collected directly by the state. Some states obtain sufficient income from these sources to pay all their expenses. Others are obliged to impose a state tax, which is usually apportioned to the local governments of township or counties. Government is further divided into township or city governments or, in the south, into county governments. These are all governed directly by the voters, who, when occasion demands, assemble to choose and instruct their officials. It is these local governments which manage local affairs, levy taxes and expend money. Town and city governments are grouped into counties. County governments lay out roads, manage certain public buildings, grant licenses and apportion county taxes.

That part of the country not yet organized into states, remains under territorial government. Alaska and Indian territory are ruled by governors appointed by the president, and the remaining territories have legislatures as well as governors, but the laws are subject to control of congress. The District of Columbia is under direct control of congress. New states are admitted by vote of congress.

To Do Business with the Government.

In writing for information under any of the departments of government, apply either to the special officer under whose division the inquiry seems to fall, or if this point is not evident, write simply to the department as a whole; as for instance, when writing for bulletins upon farm topics, address the "Department of Agriculture, Washington, D. C." But in writing for information concerning weather or meteorology the letter would naturally be addressed to Chief of Weather Bureau, Washington, D. C. In a similar way, the address to be chosen in seeking any species of departmental information can be settled by consulting our directory.

When writing to express an opinion on pending legislation, the person to address is the representative in congress from a person's own district, or to one or both of the senators from your state. The present members of congress from each state are given elsewhere. Address them simply at Washington, D. C. In the American Agriculturist year-book for 1897, maps were printed showing the counties comprising the various congressional districts. These are convenient for reference for those who have forgotten to which district their town or county belongs.

OUR OWN COUNTRY AND GOVERNMENT.

Statistics of Manufactures, Wages, Product, Etc.

Last three figures omitted except when marked *a*.

	1890	1880	1870	1860	Increase % 1860-'90.
Products of manufacture,	\$9,372,437	\$5,369,579	\$3,385,860	\$1,885,862	397
No. of establishments,	355	254	202	140	153
Capital invested,	\$6,524,475	\$2,790,273	\$1,694,567	\$1,009,856	546
Hands employed,	4,713	2,733	1,647	1,311	259
Wages paid,	\$2,283,217	\$947,954	\$620,467	\$378,879	503
Material used,	\$5,162,044	\$3,396,824	\$1,890,742	\$1,131,005	356
Manufacture of iron and steel,	\$478,688	\$296,558	\$165,767	\$98,331	387
Mfg of iron and steel rails, tons,	1,885	1,305	443	183	930
Manufacture of pig iron, tons, <i>a</i> ,	9,203	3,835	1,332	821	1,021
Manufacture of wool, <i>b</i> ,	\$338,231	\$267,253	\$159,310	\$68,866	391
Manufacture of cotton,	\$267,982	\$210,950	\$141,992	\$115,682	132
Consumption of raw wool, lbs.,	351,158	287,597	171,496	95,452	268
Consumption of raw cotton, lbs.,	1,117,946	750,344	318,646	422,705	164
Chemicals,	\$59,353	\$38,174	\$15,534	\$4,706	1,161
Manufacture of silk,	\$87,298	\$41,033	\$9,769	\$6,608	1,226
Clay products, pottery, etc.,	\$84,828	\$41,811	\$4,837	\$2,464	3,343
Printing and publishing,	\$275,453	\$90,789	\$53,490	\$31,064	787
Glass,	\$41,051	\$21,155	\$15,381	\$8,775	368
Foreign trade,	\$1,647,139	\$1,503,593	\$662,964	\$687,192	140

a From the report of the American iron and steel association.*b* From North's wool book.

POPULATION BY FAMILIES AND NUMBER OF DWELLINGS IN EACH STATE.

Census of 1890.

STATES AND TERRITORIES	Number of dwellings.	Per- sons to a dwell- ing.	Number of families.	Per- sons to a fam- ily.	STATES AND TERRITORIES	Number of dwellings.	Per- sons to a dwell- ing.	Number of families.	Per- sons to a fam- ily.
Alabama....	281,602	5.37	287,292	5.27	Nevada.....	10,066	4.55	10,170	4.50
Arizona.....	13,338	4.47	13,495	4.42	N. H.	76,665	4.91	87,348	4.31
Arkansas...	209,190	5.39	213,620	5.28	New Jersey..	247,342	5.84	308,339	4.69
California..	235,925	5.12	245,710	4.92	New Mexico..	34,671	4.43	35,504	4.33
Colorado....	81,127	5.08	84,276	4.89	New York...	895,593	6.70	1,308,015	4.59
Connecticut	130,779	5.71	165,890	4.50	N. Carolina..	301,571	5.37	306,952	5.27
Delaware...	33,882	4.97	34,578	4.87	N. Dakota...	37,918	4.82	38,478	4.75
Dist. of Col.	38,798	5.94	43,967	5.24	Ohio.....	720,414	5.10	785,291	4.68
Florida.....	78,819	4.97	80,059	4.89	Oklahoma..	14,942	4.14	15,029	4.11
Georgia.....	342,847	5.36	352,059	5.22	Oregon.....	61,925	5.07	63,791	4.92
Idaho.....	17,852	4.73	18,113	4.66	Penn.....	999,364	5.26	1,061,626	4.95
Illinois.....	669,812	5.71	778,015	4.92	R. Island....	52,250	6.61	75,010	4.61
Indiana.....	452,043	4.85	467,146	4.69	S. Carolina..	217,195	5.30	222,941	5.16
Iowa.....	379,318	5.04	388,517	4.92	S. Dakota...	68,894	4.77	70,250	4.68
Kansas.....	292,086	4.89	297,358	4.80	Tennessee...	323,126	5.47	334,194	5.29
Kentucky..	335,990	5.53	354,463	5.24	Texas.....	402,422	5.56	411,251	5.44
Louisiana...	204,341	5.47	214,123	5.22	Utah.....	37,285	5.58	38,816	5.36
Maine.....	135,205	4.89	150,355	4.40	Vermont....	69,817	4.76	75,869	4.38
Maryland...	184,204	5.66	202,179	5.16	Virginia....	292,654	5.66	304,673	5.44
Massa'setts	355,280	6.30	479,790	4.67	Washington	68,833	5.08	70,977	4.92
Michigan...	434,370	4.82	455,004	4.60	West Va....	136,378	5.59	140,359	5.43
Minnesota..	229,678	5.67	247,975	5.25	Wisconsin..	316,163	5.34	335,456	5.03
Mississippi..	235,656	5.47	241,148	5.35	Wyoming...	11,880	5.11	12,065	5.03
Missouri....	485,320	5.52	528,295	5.07					
Montana....	26,934	4.91	27,501	4.81	Total.....	11,483,318	5.45	12,690,152	4.93
Nebraska...	201,470	5.26	206,820	5.12					

When Hawaii becomes a part of the United States, the geographical center of the country, measured from east to west, will be about 280 miles west of San Francisco.

The choice of the people, the best title to rule.

Members of congress are usually glad to assist residents of their district in obtaining information, or otherwise.

THE DEPARTMENTS OF GOVERNMENT,

AND THE PRINCIPAL OFFICERS THEREIN, THEIR TITLES, SALARIES, DUTIES, ETC.

THE EXECUTIVE.

President, William McKinley, of Ohio.

Vice president, Garrett A. Hobart, of New Jersey.

CABINET—The members of the cabinet are given in the order of their possible succession to the presidency:

Sec. of State, John Sherman, of Ohio.

Sec. of Treasury, Lyman J. Gage, of Ill.

Sec. of War, Russell A. Alger, of Mich.

Att'ny Gen., Joseph McKenna, of Cal.

Postmaster General, James A. Gary, of Me.

Sec. of the Navy, John D. Long, of Mass.

Sec. of the Int'r, Cornelius N. Bliss, of N. Y.

Sec. of Agriculture, James Wilson, of Iowa.

Department of State.

Sec. of State, John Sherman,	\$8,000	S'nd Ass't Sec., Alvey A. Adee,	\$3,500
Ass't Sec., Wm. Woodville Rockhill,	4,000	Third " " Wm. Woodward Baldwin,	3,500

The secretary of state is charged, under the direction of the president, with the duties appertaining to correspondence with the public ministers and the consuls of the United States, and with the representations of foreign powers accredited to the United States; and to negotiations of whatever character relating to the foreign affairs of the United States. He is also the medium of correspondence between the president and the chief executives of the several states of the United States; he has the custody of the great seal of the United States, and countersigns and affixes such seal to all executive proclamations, to various commissions, and to warrants for the extradition of fugitives from justice. He is regarded as the first in rank among the members of the cabinet. He is also the custodian of the treaties made with foreign states, and of the laws of the United States. He grants and issues passports, and exequaturs to foreign consuls in the United States are issued through his office. He publishes the laws and resolutions of congress, amendments to the constitution, and proclamations declaring the admission of new states into the Union. He is also charged with certain annual reports of congress relating to commercial information received from diplomatic and consular officers of the United States.

The assistant secretary of state becomes the acting secretary in the absence of the secretary. The assistant, second assistant, and third assistant secretary are charged with the immediate supervision of all correspondence with the diplomatic and consular officers and are intrusted with the preparation of the correspondence upon any questions arising in the course of the public business that may be assigned to them by the secretary.

There are also the diplomatic bureau, consular bureau, bureau of indexes and archives, bureau of accounts, of rolls and library, and of statistics, in charge of matters indicated by their titles. The solicitor, from the department of justice, is the law officer.

Fire and faggots are but sad reformers.

Treasury Department.

Sec. of Treasury, Lyman J. Gage,	\$8,000	H. Eckels,	\$5,000
Ass't Sec., Wm. E. Curtis,	4,500	Com. Internal Revenue, W. S. Fore-	
Director of Eng. and Printing, Claude		man,	6,000
M. Johnson,	4,500	Director of Mint, R. E. Preston,	4,500
Chief Secret Service, Wm. P. Hazen,	3,500	Com. of Nav., Eugene Tyler Cham-	
Chief Bur. Statistics, Worthington C.		berlain,	3,600
Ford,	3,000	Chairman Light-house Board, Rear	
Supt. Life Saving Serv'e, S. I. Kimball,	4,000	Admiral, John G. Walker,	
Comptroller, Robert B. Bowler,	5,500	Supt. Coast and Survey, W. W. Duf-	
Register, J. Fount Tillman,	4,000	field,	6,000
Treasurer, Daniel N. Morgan,	6,000	Supervisor of Marine Hospital, Wal-	
Ass't Treasurer, James F. Maline,	3,600	ter Wyman,	
Comptroller of the Currency, James		Supt. of Immigrat'n, Herman Stump,	4,000

The secretary of the treasury is charged by law with the management of the national finances. He prepares plans for the improvement of the revenue and for the support of the public credit; superintends the collection of the revenue and prescribes the forms of keeping and rendering public accounts and of making returns; grants warrants for all moneys drawn from the treasury in pursuance of appropriations made by law and for the payment of moneys into the treasury; and annually submits to congress estimates of the probable revenues and disbursements of the government. He also controls the construction of public buildings; the coinage and printing of money; the collection of statistics; the administration of the coast and geodetic survey, life-saving, lighthouse, revenue-cutter, steamboat-inspection and marine hospital branches of the public service, and furnishes generally such information as may be required by either branch of congress on all matters pertaining to the foregoing.

The routine work of the secretary's office is divided among his assistants as follows: To the first assistant secretary is assigned the general direction of the divisions of public moneys, loans and currency, miscellaneous, the bureau of engraving and printing, the office of the chief clerk and superintendent, the supervising architect, supervising surgeon general of the marine hospital service, and the supervising inspector general of the steamboat inspection service. The second assistant secretary has charge of the divisions of customs, revenue-cutter, special agents and secret service, lighthouse and bureau statistics. The third assistant secretary is charged with the divisions of warrants, estimates, appropriations, stationery and printing, mail and bills, the navigation and immigration bureau, and the life-saving service.

The chief clerk supervises, under the immediate direction of the secretary and assistant secretary, the clerks and employes, the answering of calls from congress and elsewhere for copies of papers and information, and other duties of a general nature not assigned to special bureaus.

AUDITORS AND COMPTROLLERS.

Within the treasury department are the auditors for the treasury department, also for the war, interior, navy, postoffice, state and other departments. These auditors and other aids receive and examine all accounts from their respective departments. There are several divisions of the work of each auditor and many assistants and employes. The

The strength of an empire is in religion.

comptroller of the treasury decides all points raised by auditors, prescribes the forms for accounts, etc.

The comptroller of the currency has, under direction of the secretary of the treasury, the control of the national banks which is conducted through a division in charge of the organization of national banks; the issue division, for the preparation and issue of national bank circulation; reports division, for the examination of reports of national banks; redemption division, for the destruction of notes issued by national banks.

The solicitor of the treasury is its law officer, in charge of its suits and other legal matters, excepting these under internal revenue laws.

TREASURY AND SUBDIVISIONS.

The treasurer of the United States is charged with the receipt and disbursement of all public moneys that may be deposited in the treasury at Washington and the subtreasuries at Boston, New York, Philadelphia, Baltimore, New Orleans, San Francisco, St. Louis, Chicago, and Cincinnati, and in the national-bank United States depositaries; is trustee for bonds held to secure national-bank circulation and public deposits in national banks; is custodian of Indian trust-fund bonds; is agent for paying the interest on the public debt, and ex-officio commissioner of the sinking fund of the District of Columbia. The treasury subdivisions are:

The chief clerk receives and distributes the official mail; has charge of the correspondence and the disposition and payment of the clerical force, and the custody of the records and files; and of the issue of duplicate checks and drafts.

The cash division, for receipt and payment of public funds at Washington.

The issue division, completion of new United States notes, gold and silver certificates, and count of silver, gold, and minor coin.

The redemption division, all currency except national-bank notes received and redeemed.

The loan division, interest checks prepared and bonds redeemed.

The accounts division, the accounts of the treasury, the subtreasuries, and the United States national-bank depositaries are kept.

The national bank division, has custody of bonds held for national-bank circulation, for public deposits, and various public trusts, and makes collection of semi-annual duty.

The national bank redemption agency, notes of national banks are redeemed and accounted for.

The register of the treasury signs and issues all bonds of the United States, all transfers of money from the treasury, registers coupon bonds, receives all redeemed money and United States securities. Also all customs, internal revenue, and postage stamps condemned for imperfections. He is one of the committee who has charge of the destruction of wornout money. The work of his office is divided between the division of loans and the division of notes, coupons and currency.

The director of the mint has general supervision of all the mints and assay offices of the United States. He prescribes rules, to be approved by the secretary of the treasury, for the transaction of business at the mints and assay offices. He regulates the distribution of silver coin and the charges to be collected of depositors. He receives for

Be resolved, and the thing is done.

Nationality of the American People.

Compiled from the Reports of the Census of 1890.

STATES AND TERRITORIES.	German Born.	Irish Born.	English Born.*	Scotch Born.	British- American Born.	Scandi- navian Born.	Russian and Polish Born.	French Born.	Italian Born.
Alabama.....	3,945	2,604	2,945	1,391	620	412	328	592	322
Arizona.....	1,188	1,171	1,117	313	732	407	66	296	207
Arkansas.....	6,225	2,021	1,570	430	947	518	364	428	187
California.....	61,472	63,138	35,503	9,299	26,028	22,389	4,054	11,855	15,495
Colorado.....	15,151	12,352	14,407	4,339	9,142	12,202	1,578	1,328	3,882
Connecticut.....	28,176	77,880	20,575	5,992	21,231	12,018	4,531	2,048	5,285
Delaware.....	2,469	6,121	1,917	432	309	301	534	183	459
Dist. of Columbia,	5,778	7,224	2,128	578	655	270	309	385	467
Florida.....	1,855	1,056	2,765	570	1,151	813	148	275	408
Georgia.....	3,679	3,374	1,585	619	609	340	320	306	159
Idaho.....	1,989	1,917	3,138	643	1,791	3,506	128	178	509
Illinois.....	338,382	124,498	70,510	20,465	39,525	128,897	37,285	8,540	8,035
Indiana.....	84,900	20,819	11,200	2,948	4,954	5,515	3,690	3,297	468
Iowa.....	127,246	37,353	26,228	7,701	17,465	72,873	1,235	2,327	399
Kansas.....	46,423	15,870	18,036	5,546	11,874	22,018	10,195	2,236	616
Kentucky.....	32,620	13,926	4,162	1,010	1,173	396	566	1,168	707
Louisiana.....	14,625	9,236	2,457	465	762	696	445	8,437	7,767
Maine.....	1,104	11,444	7,286	2,285	52,076	2,711	474	441	253
Maryland.....	52,436	18,735	5,591	2,323	1,020	599	6,055	623	1,416
Massachusetts....	28,034	259,902	76,513	21,909	207,601	22,655	10,666	3,273	8,066
Michigan.....	135,509	39,065	55,388	12,068	181,416	41,496	27,558	5,182	3,088
Minnesota.....	116,355	28,011	14,745	5,315	43,580	215,215	14,736	1,869	828
Mississippi.....	2,284	1,865	887	203	345	449	194	449	425
Missouri.....	125,461	40,966	18,675	4,601	8,525	7,461	4,065	4,175	2,416
Montana.....	5,609	6,648	6,481	1,588	9,040	6,411	812	478	734
Nebraska.....	72,618	15,963	14,472	3,839	12,105	46,341	7,786	1,256	717
Nevada.....	1,563	2,696	2,149	360	1,662	715	78	226	1,129
New Hampshire..	1,631	14,890	4,763	1,906	46,321	1,525	218	222	312
New Jersey.....	106,181	101,059	43,785	13,163	4,698	8,467	8,935	4,714	12,989
New Mexico.....	1,413	966	1,258	436	681	245	97	284	355
New York.....	498,602	483,375	144,422	35,332	93,193	43,270	81,184	20,443	64,141
North Carolina...	1,077	451	882	381	355	90	97	55	28
North Dakota....	8,943	2,967	3,322	1,788	23,045	34,216	4,335	203	21
Ohio.....	235,688	70,127	51,027	10,275	16,515	4,209	10,513	7,171	3,857
Oklahoma.....	739	329	290	118	420	211	61	82	11
Oregon.....	12,475	4,891	5,679	2,242	6,460	7,333	2,679	842	589
Pennsylvania....	230,516	243,836	125,145	32,081	12,171	23,594	42,506	90,033	24,662
Rhode Island....	3,200	38,920	20,913	4,984	27,934	3,831	864	460	2,468
South Carolina...	2,502	1,605	597	293	159	119	241	138	106
South Dakota....	18,188	4,774	5,113	1,579	9,493	31,372	12,674	350	269
Tennessee.....	5,364	5,016	2,857	704	1,020	465	645	490	788
Texas.....	48,843	8,201	9,443	2,172	2,866	4,768	2,568	2,730	2,107
Utah.....	2,121	2,045	20,995	3,474	1,222	16,863	310	205	347
Vermont.....	877	9,810	3,519	1,730	25,004	966	212	175	445
Virginia.....	4,861	4,578	3,355	1,034	780	425	474	331	1,219
Washington.....	15,399	7,799	9,857	3,514	17,412	21,413	2,327	1,046	1,408
West Virginia....	7,292	4,799	2,700	914	374	123	195	213	632
Wisconsin.....	259,819	33,306	23,633	5,494	33,163	99,738	19,939	2,900	1,123
Wyoming.....	2,037	1,900	3,148	1,380	1,134	2,382	812	127	259
Totals.....	2,784,894	1,871,509	909,092	242,231	980,938	933,249	330,084	113,174	182,580

*Includes natives of Great Britain not specified.

Total from Germany, 2,784,894; Ireland, 1,871,509; British America, including Newfoundland, 980,938; England, 909,092; Sweden, 478,041; Norway, 322,665; Scotland, 242,231; Russia, 182,644; Italy, 182,580; Poland, 147,440; Denmark, 132,543; Austria, 123,271; Bohemia, 118,106; France, 113,174; China, 106,688; Switzerland, 104,069; Wales, 103,079; Netherlands, 81,828; Mexico, 77,853; Hungary, 62,435; Belgium and Luxembourg, 25,521; Cuba and West Indies, 23,256; Portugal, 15,996; Central and South America, 6,198; Spain, 6,185; India, including Asia, not specified, 4,403; Japan, 2,292; Greece, 1,887; all others, 41,729. Total foreign born, 9,249,547.

The United States produces one-third of the world's supply of food.

Impartial vigor and example are the best means of governing.

adjustment the accounts of the mints and assay offices, superintends their expenditures and annual settlements, and makes special examinations of them when deemed necessary. All appointments, removals, and transfers in the mints and assay offices are subject to his approval. The purchase of silver bullion and the allotment of its coinage are made by the director, and, at his request, also transfers of the moneys in the mints and assay offices and advances from appropriations for the mint service.

Tests of the weight and fineness of coins struck at the mints are made in the assay laboratory under his charge. The values of the standard coins of foreign countries are annually estimated for custom-house and other public purposes. Two annual reports are prepared by the director, one for the fiscal year, and printed in the finance report of the secretary of the treasury, the other for the calendar year, on the statistics of the production of the precious metals.

OTHER OFFICERS IN TREASURY DEPARTMENT.

The commissioner of internal revenue makes assessment of and has general superintendence of the collection of all internal-revenue taxes, and of the enforcement of internal-revenue laws. The business of his office is divided into the several subject-matters and distributed among nine divisions as follows: Appointments, law, tobacco, accounts, distilled spirits, stamps, assessments, revenue agents, chemistry.

The commissioner of navigation is charged with general superintendence of the commercial marine and merchant seamen of the United States, except so far as supervision is lodged with other officers of the government.

The coast and geodetic survey is charged with the survey of the Atlantic, Gulf, and Pacific coasts of the United States, including the coasts of Alaska; the survey of rivers to the head of tide-water or ship navigation; deep-sea soundings, temperature and current observations along the said coasts and throughout the Gulf Stream and Japan Stream flowing off from them; also various special researches.

It is the duty of the commissioner-general of immigration to prepare and revise all regulations pertaining to immigration and to supervise the expenditures of the appropriations for "Expenses regulating immigration" and the "Enforcement of the alien contract-labor laws," and certify same to the accounting officers of the treasury department.

The chief of the bureau of statistics collects and publishes the statistics of our foreign commerce, embracing tables showing the imports and exports, respectively, by countries and customs districts, also special information in regard to our internal commerce.

The publications of the bureau are as follows: Annual report on commerce and navigation; annual report on internal commerce; annual statistical abstract of the United States; quarter-yearly reports on commerce, navigation, and immigration; monthly summary statements of imports and exports; monthly reports of total values of foreign commerce and immigration; monthly reports of exports of breadstuffs, of provisions, of petroleum, and cotton.

The divisions of the bureau are as follows: Division of examination and revision; division of compilation; miscellaneous division; library and files.

The supervising inspector general of steam vessels has charge of the

administration of the steamboat inspection laws. The supervising inspectors meet at Washington on the third Wednesday in each January to establish regulations for carrying out the provisions of these laws.

The supervising surgeon-general of the marine hospital service has charge of the marine hospital and the care of the sick and disabled seamen taken from merchant vessels of the United States (ocean, lake and river) as well as from revenue and lighthouse vessels. He frames the regulations for preventing the importation of contagious diseases and their spread, and conducts the quarantine service. He also supervises the inspection of alien immigrants.

The general superintendent of the life saving service has full charge of that important division. The lighthouse board is in charge of light-houses and vessels, fog-signals, buoys, etc.

The bureau of engraving and printing designs, engraves, prints and finishes all the securities, moneys, stamps, certificates, etc., issued by the government.

War Department.

Sec. of War, Russell A. Alger,	\$8,000	Weeks,	\$5,500
Ass't Sec. of War, Joseph B. Doe,	4,500	Commiss'y Gen.,—Gen. T. C. Sullivan,	5,500
Chief Clerk, John Tweeddale,	2,500	Surgeon Gen.,—Brig. Gen. George M.	
Disbursing Clerk, Wm. S. Yeatman,	2,000	Sternburg,	5,500
Correspond'e and Record div. Chief,		Paymaster Gen.,—Brig. Gen. T. H.	
John F. Dillon,		Stanton,	5,500
Supply Div'n, Ch'f, Rich'd J. Whitton,		Chief of Engineers,—Brig. Gen. John	
Major Gen. of Army, Nelson A. Miles,	7,500	M. Wilson,	5,500
Adjutant Gen.,—Brig. Gen. Joseph C.		Chief of Ordnance,—Brig. Gen. D. W.	
Breckinridge,	5,500	Flagler,	5,500
Judge Adv'e,—Gen. Brig. G. N. Lieber,	5,500	Chief Signal Officer,—Brig. Gen. A.	
Quarterm'r Gen.,—Brig. Gen. Geo. H.		W. Greely,	5,500

DEPARTMENT OF WAR.

The secretary of war is at the head of the war department, and performs such duties as the president may enjoin upon him, concerning the military service. He has supervision of all the estimates of appropriations for the expenses of the department, of all purchases of army supplies, and of all expenditures for the support and transportation of the army, and of such expenditures of a civil nature as are by law placed under his direction. He also has supervision of the United States military academy at West Point; of national cemeteries; of the publication of the official records of the war of the rebellion, and of the board on ordnance and fortification. He has charge of all matters relating to river and harbor improvements; the prevention of obstruction to navigation; the establishment of harbor lines, and approves the plans and location of bridges authorized by congress to be constructed over the navigable waters of the United States.

As the head of the war department, the secretary of war has charge of that department under the supervision of the president. The secretary makes estimates of appropriations needed for the department, also for army expenses and for such civil expenses as the law places in his charge. He has supervision of the military academy at West Point; of the national cemeteries and of the official records of the civil war, also supervision of the board of ordnance and fortification. He has charge

of river and harbor improvements, the location of bridges authorized by congress, and similar matters.

ASSISTANTS.

The assistant secretary of war performs such duties as shall be prescribed by the secretary or may be required by law.

The chief clerk has charge of the official mail and correspondence, and performs such duties as are enjoined by law or assigned to him by the secretary.

The chiefs of the military bureaus of the war department are officers of the regular army of the United States and a part of the military establishment, viz:

The adjutant-general promulgates all orders of a military character of the president, the secretary of war, and the commanding general of the army, and conducts the correspondence between the latter and the army; receive reports and returns pertaining to the army; prepares commissions, appointments, and acceptances of resignations for issuance; and, under the immediate direction of the secretary of war, has charge of the recruiting service.

The inspector-general, with his assistants, inspects all military commands and stations, the schools of application, the military department of all colleges and schools at which officers of the army are detailed, all depots, rendezvous, armories, arsenals, fortifications, and public works of every kind under charge of or carried on by the officers of the army; and also the money accounts of all disbursing officers of the army.

The quartermaster-general, aided by assistants, provides transportation for the army; also clothing and equipage, horses, mules, and wagons, vessels, forage, stationery, and other miscellaneous quartermaster stores and property for the army, and of clothing and equipage for the militia; constructs necessary buildings, wharves, roads, and bridges at military posts, and repairs the same; furnishes water, heating and lighting apparatus; pays guides, spies, and interpreters, and is in charge of national cemeteries.

The commissary-general of subsistence has administrative control of the subsistence department.

The surgeon-general, under the immediate direction of the secretary of war, is charged with the administrative duties of the medical department.

SUB-OFFICERS.

The paymaster-general is charged with the payment of the officers and enlisted men of the army and civil employes of the department.

The chief of engineers commands the corps of army engineers.

The chief of ordnance commands the ordnance department, the duties of which consist in providing, preserving, distributing and accounting for every description of artillery, small arms, and all the munitions of war which may be required for the fortresses of the country, the armies in the field, and for the whole body of the militia of the Union.

The judge-advocate-general is directed by law to "receive, review, and cause to be recorded the proceedings of all courts-martial, courts of inquiry, and military commissions." He also furnishes the secretary of war information and advice relating to and under control of the war department, and reports and opinions upon legal questions arising under

All is fine that is fit.

Sex, Nativity and Race in the United States.

Census of 1890. Given in thousands.

STATES AND TERRITORIES.	Total Population.	SEX.		NATIVITY.		RACE.			
		Male.	Female	Native Born.	Foreign Born.	Total Whites.	Native Born Whites.	Foreign Born Whites.	Colored
Alabama.....	1,513.	757	755	1,498	14	833	819	14	679
Arizona.....	59	36	23	40	18	55	38	17	4
Arkansas.....	1,128	585	542	1,113	14	818	804	14	309
California.....	1,208	700	508	841	366	1,111	818	293	96
Colorado.....	419	245	166	328	83	404	321	82	7
Connecticut.....	746	369	376	562	183	733	550	183	12
Delaware.....	168	85	82	155	13	140	126	13	28
Dist. of Columbia...	230	109	120	211	18	154	136	18	75
Florida.....	391	201	189	368	22	224	206	18	166
Georgia.....	1,837	919	917	1,825	12	978	966	11	858
Idaho.....	84	51	33	66	17	82	66	15	2
Illinois.....	3,826	1,972	1,854	2,984	342	3,768	2,927	840	57
Indiana.....	2,192	1,118	1,074	2,046	146	2,146	2,000	146	45
Iowa.....	1,911	994	917	1,587	324	1,901	1,577	323	10
Kansas.....	1,427	752	674	1,279	147	1,376	1,228	47	50
Kentucky.....	1,858	942	915	1,799	59	1,590	1,531	59	268
Louisiana.....	1,118	559	559	1,068	49	558	509	48	560
Maine.....	661	332	328	582	78	659	580	78	1
Maryland.....	1,042	515	526	948	94	826	732	93	215
Massachusetts.....	2,238	1,987	1,151	1,581	657	2,215	1,561	653	23
Michigan.....	2,093	1,091	1,002	1,550	543	2,072	1,531	541	21
Minnesota.....	1,301	695	606	834	467	1,296	829	467	5
Mississippi.....	1,289	649	639	1,281	7	544	537	7	744
Missouri.....	2,679	1,385	1,292	2,444	234	2,528	2,294	234	150
Montana.....	132	87	44	89	43	127	86	40	4
Nebraska.....	1,058	572	486	856	202	1,046	844	202	12
Nevada.....	45	29	16	31	14	39	27	11	6
New Hampshire.....	376	186	189	304	72	375	303	72	6
New Jersey.....	1,444	720	724	1,115	328	1,396	1,068	327	48
New Mexico.....	153	83	70	142	11	142	131	10	10
New York.....	5,997	2,976	3,020	4,426	1,571	5,923	4,358	1,565	73
North Carolina.....	1,617	799	818	1,614	3	1,055	1,051	3	562
North Dakota.....	182	101	81	101	81	182	100	81	1
Ohio.....	3,672	1,855	1,816	3,213	459	3,584	3,126	458	87
Oklahoma.....	61	34	27	59	2	58	56	2	3
Oregon.....	313	181	131	256	57	301	253	47	12
Pennsylvania.....	5,258	2,666	2,591	4,412	845	5,148	4,304	843	109
Rhode Island.....	345	168	177	239	106	337	231	106	7
South Carolina.....	1,151	572	578	1,144	6	462	455	6	689
South Dakota.....	328	180	148	237	91	327	236	90	1
Tennessee.....	1,767	891	875	1,747	20	1,336	1,316	19	430
Texas.....	2,235	1,172	1,062	2,082	152	1,745	1,594	151	489
Utah.....	207	110	97	154	53	205	153	52	2
Vermont.....	332	169	163	288	44	331	287	44	1
Virginia.....	1,655	824	831	1,637	18	1,020	1,001	18	635
Washington.....	349	217	131	259	90	340	254	86	8
West Virginia.....	762	390	372	743	18	730	711	18	32
Wisconsin.....	1,686	874	811	1,167	519	1,680	1,161	518	6
Wyoming.....	60	39	21	45	14	59	44	14	1
Total.....	62,622	32,067	30,554	53,372	9,249	54,983	45,862	9,121	7,638

About one-sixth the agricultural products of the United States are exported.

The price per acre of tillage land in the United States is almost one-half the average price in Great Britain.

The census of 1890 showed that 29 per cent of the people of the United States live in cities. Canada's census of 1891 showed 29 per cent also of city population. This agreement in the statistics of the two countries is quite remarkable.

Those who cannot govern themselves must be governed.

the laws, regulations, and customs pertaining to the army, and upon questions arising under the civil law, etc.

The chief signal officer is charged with the supervision of all military signal duties, and of books, papers, and devices connected therewith.

The chief of the record and pension office is charged by law with the custody of the military and hospital records of the volunteer armies and the transaction of the pension and other business of the war department connected therewith. The records of the office include those of the late provost-marshal-general's bureau and the bureau of refugees, freedmen, and abandoned lands; also the confederate archives, embracing those relating to the legislative, executive, and judicial branches of the confederate government.

Department of Justice.

Attorney Gen., Joseph McKenna,	\$8,000	Ass't Att'y-Gen., Joshua Eric Dodge,	\$5,000
Solicitor Gen., Holmes Conrad,	7,000	Ass't Att'y-Gen., I. H. Lionberger,	5,000

The attorney-general is the head of the department of justice and the chief law officer of the government. He represents the United States in matters involving legal questions; he gives his advice and opinion, when they are required by the president or by the heads of the other executive departments, on questions of law arising in the administration of their respective departments; he exercises a general superintendence and direction over United States attorneys and marshals in all judicial districts in the states and territories; and he provides special counsel for the United States whenever required by any department of the government. He is assisted by a chief clerk and other clerks and employes in the executive management of the business of the department. A law clerk, who is also an examiner of titles, assists the attorney-general in the investigation of legal questions and in the preparation of opinions.

The solicitor-general assists the attorney-general in the performance of his general duties, and by special provision of law, in the case of a vacancy in the office of attorney-general or in his absence, exercises all these duties.

Four assistant attorneys-general assist the attorney-general and the solicitor-general in the performance of their duties.

Under the act of 1870 the different law officers of the executive departments exercise their functions under the supervision and control of the attorney-general. They are the assistant attorney-general for the department of the interior, the assistant attorney-general for the postoffice department, the solicitor of the treasury, the solicitor of internal revenue, treasury department, and the solicitor for the department of state.

Post-office Department.

Postmaster Gen., James A. Gary,	\$8,000	Sec. Ass't P. M. G., Charles Neilson,	\$4,000
Chief Clerk, Blain W. Taylor,	2,500	Third Ass't P. M. G., Kerr Craige,	4,000
First Ass't P. M. G., Frank H. Jones,	4,000	Fourth Ass't P. M. G., R. A. Maxwell,	4,000

An ill man in office is a mischief to the public.

The postmaster-general has the direction and management of the postoffice department. He appoints all officers and employes of the department, except the four assistant postmasters-general, who are appointed by the president, by and with the advice and consent of the senate; appoints all postmasters whose compensation does not exceed \$1000; makes postal treaties with foreign governments, by and with the advice and consent of the president, awards and executes contracts, and directs the management of the domestic and foreign mail service.

The first assistant postmaster-general has charge of the following divisions, viz: Salary and allowance, free delivery, postoffice supplies, money orders, dead letters, correspondence division. To this last named division are referred inquiries received from postmasters and others relative to the construction of postal laws and regulations, disputes regarding the delivery of mail matter, and all correspondence of a miscellaneous character.

The second assistant postmaster-general has charge of the transportation of all mails. His office embraces four divisions and two offices, viz: The contract division, the division of inspection, the railway adjustment division, the mail equipment division, the office of railway mail service, the office of foreign mails.

The third assistant postmaster-general has charge of the finance office, etc., embracing the following five divisions: Finance, postage stamps and stamped envelopes, registered letters, mail classification, files, mails, etc. The office of the third assistant postmaster-general has also charge of the special delivery system.

The fourth assistant postmaster-general has charge of the bureau including the divisions of appointments, of bonds and commissions, and of postoffice inspectors and mail depredations.

Navy Department.

Secretary of Navy, John D. Long,	\$8,000	Ch'f Bu. Equip't, F. E. Chadwick,	\$5,000
Ass't Sec., William McAdoo,	4,500	Ch'f Bu. Navi'n, F. M. Ramsey,	6,000
Chief Clerk, B. F. Peters,	2,500	Director Naut. Almanac, Prof. W. W.	
Ch'f Bu. Ord'e, Capt. W. T. Sampson,	5,000	Hendrickson,	3,500

The secretary of the navy performs such duties as the president of the United States, who is commander-in-chief, may assign him and has general superintendence of construction, manning, armament, equipment and employment of officers of war. He has a chief clerk. The assistant secretary performs such duties as shall be prescribed by the secretary or required by law. All chiefs of the naval bureaus of the department are officers of the United States navy and a part of the naval establishment.

The bureau of navigation has charge of all that relates to the promulgation record and enforcement of the secretary's orders to the navy, the education and training of enlisted men, preparation of annual naval register, conducts the hydrographic office and collection and dissemination of information for the navy and mercantile marine.

The bureau of yards and docks has charge of everything relating to its institutions.

The bureau of equipment has charge of the outfitting of the navy.

The ordnance is in charge of that bureau

Great office, great care.

There is also a bureau of construction and repair, of steam engineering, of medicine and surgery, of supplies and accounts. The judge advocate general attends to the manifold legal business of the naval department, including revision of proceedings of all courts-martial, etc.

Department of the Interior.

Sec. of Interior, C. N. Bliss,	\$8,000	Surveying Div. Ch'f, Frank Flynt,	\$2,000
First Ass't Sec., Wm. H. Sims,	4,500	R. R. Div. Ch'f, Wm. J. McGee,	2,000
Ass't Sec., John M. Reynolds,	4,000	Pre-empt'n Div. Ch'f, Geo. McCorkle,	2,000
Ass't Att'y Gen. Dt., I. H. Lionberger,	2,200	Cont. Div. Ch'f, M. F. O'Donoghue,	2,000
Ch'f Cl'k Patent O., Emmet Womack,	2,750	Swamp land Div. C'f, Edmond Mallet,	2,000
First Ass't Att'y, Géo. B. Gardiner,	2,200	Aec'ts Div. Ch'f, Wm. C. Braly,	2,000
Appointm't Div. C'f, J. W. Holcombe,	2,000	Mineral Div. Ch'f, John E. Wright,	2,000
Disbursing Div. C'f, G. W. Evans,	2,000	Spec'l Ser. Div. Ch'f, J. R. Moore,	2,000
Lands and R. R. Div. C'f, J. I. Parker,	4,000	Com. Patent Office, J. S. Seymour,	5,000
Indian Div. C'f, Eugene E. White,	4,000	Com. of Pensions, D. I. Murphy,	5,000
Pat's, Miscel. Div. C'f, Wm. P. Couper,	5,000	Pension Agent, Sidney L. Willson,	5,000
Pension Div. Ch'f, Wm. T. Pierson,	5,000	Com. Indian Aff's, Dan. M. Browning,	4,000
Com. Land Office, S. W. Lamoreux,	5,000	Com. Education, Wm. T. Harris,	3,000
Ass't Commiss'r, Emory F. Best,	3,500	Com. of Railroads, Wade Hampton,	4,500
Chief Clerk, Ernst Schwartz,	2,250	Director Geol. Survey, C. D. Walcott,	6,000
Recorder, Lucius I. C. Laman,	2,000	Commis'r of Ce'ss, Carroll D. Wright,	6,000
Public Land Div. Ch'f, A. C. Shaw,	2,000	Act. Ch'f of Division, Geo. S. Donnell,	2,000

The secretary of the interior is charged with the supervision of public business, relating to the officers of this department named below. Also, all public parks, reservations and distribution of appropriations for agricultural and mechanical colleges, and also exercises certain powers and duties in relation to the territories.

He is aided by the first assistant secretary and by the assistant secretary. The assistant attorney-general is the chief law officer of this department.

The chief clerk has the general supervision of the clerks and employes. The principal divisions of this department are as follows: Pensions, land office, Indian affairs, education, railroads, geological survey, census.

Department of Agriculture.

Sec. of Agri., James Wilson,	\$8,000	Ch'f Mis'l's Div., Dr. A. M. Farrington,	2,000
Ass't Sec., Hon. J. H. Brigham,	4,500	Ch'f Path'eal Div., Dr. V. A. Norgaard,	2,000
Chief Clerk, D. MacCraig,	2,500	Zoologist, Dr. C. W. Stiles,	2,500
Appointm't Cl'k, J. B. Bennett,	2,000	Ch'rg Exp. Sta., Dr. E. C. Schroeder,	3,000
Ch'f Foreign Mark., F. H. Hitchcock,	2,200	Statistician, Henry A. Robinson,	3,000
Librarian, W. P. Cutter,	1,800	Ass't Statistician, G. K. Holmes,	2,200
Ch'f of Supply Div., C. B. Lower,	2,000	Chemist, Harvey W. Wiley,	2,500
Ch'f Weather Bu., W. L. Moore,	4,500	Dir. Exp. Stations, A. C. True,	3,000
Chief Clerk, James R. Cook,	2,250	Entomologist, L. O. Howard,	2,500
Sup. Forec't Offic'l, Maj. H. H. C. Dun-		Ch'f Biolog'l Sur'y, C. H. Merriam,	2,500
woody,	2,500 to 3,500	Ch'f of Forestry, B. E. Fernow,	2,500
Prof. of Meteorology, Cleveland Abbe,	3,000	Botanist, F. V. Coville,	2,500
Ch'f Forecast Div., H. E. Williams,	2,000	Ch'f Agrostology, F. L. Scribner,	2,500
Ch'f Clim'e and Crop Div., Jas. Berry,	2,000	Pomologist, Samuel B. Heiges,	2,500
Ch'f Records Data, Alfred J. Henry,	2,000	Ch'f Veg. Physiol'y and Pathol'y, B. T.	
Supt. of Telegraph, J. H. Robinson,	1,800	Galloway,	2,500
Supt. of Printing, Louis Winters,	1,400	Ch'f of Soils, Milton Whitney,	2,500
Librarian,	1,200	Spec. Ag't Fiber Inves., C. R. Dodge,	2,000
Pri. Sec. to Ch'f of Bu., E. B. Calvert,	1,600	Direc. of Road Inquiry, Roy Stone,	3,000
Ch'f Bu. Ani'l Ind'y, Dr. D. E. Salmon,	4,000	Chief of Accounts, Frank L. Evans,	2,500
Ass't Chief, Dr. G. M. Brumbaugh,	2,500	Chief of Publica'ns, Geo. W. Hill,	2,500

States, Population, Area, Dimensions, Capitals.

STATES AND TERRITORIES.	Land Area in thousands sq. miles.	Population by thousands Census 1890.	Population to square mile.	Per cent increase population, 1880-'90.	Population of cities by thousands.	Number of cities.	Miles east and west.	Miles north and south.	Capitals.
Alabama.....	50	1,508	29.36	77.04	89	4	200	330	Montgomery
Arkansas.....	52	1,125	21.27	126.72	55	4	275	240	Little Rock
Arizona.....	113	59	0.53	26.50	.....	.....	335	390	Phoenix
California.....	188	1,204	7.75	52.18	495	9	375	770	Sacramento
Colorado.....	104	410	3.98	180.43	152	4	390	270	Denver
Connecticut..	4	745	154.03	33.46	385	17	90	75	Hartford
Delaware.....	2	167	85.97	41.71	61	1	35	110	Dover
Dist. of Colum.	229	3,839.87	.....	.....	230	1	9	10	Washington
Florida.....	59	390	7.22	109.16	47	3	400	460	Tallahassee
Georgia.....	58	1,834	31.15	63.25	199	7	250	315	Atlanta
Illinois.....	55	3,818	68.33	84.99	1,485	24	205	380	Springfield
Indiana.....	33	2,189	61.05	41.77	400	18	160	265	Indianapolis
Iowa.....	55	1,906	34.46	57.35	269	12	300	210	Des Moines
Idaho.....	90	84	1.00	.....	.....	.....	800	1,100	Boisé City
Kansas.....	81	1,423	17.47	112.58	165	9	400	200	Topeka
Kentucky.....	37	1,855	46.47	31.91	276	7	350	175	Frankfort
Louisiana.....	41	1,116	24.63	14.35	264	3	280	275	Baton Rouge
Maine.....	31	660	22.11	16.24	130	8	205	235	Augusta
Maryland.....	11	1,040	105.72	29.98	465	4	200	120	Annapolis
Massachusetts	7	2,233	278.48	32.00	1,564	47	190	110	Boston
Michigan.....	56	2,089	36.46	70.71	546	20	310	400	Lansing
Minnesota.....	83	1,300	16.44	194.74	369	6	350	400	St. Paul
Mississippi...	47	1,284	27.83	49.68	34	3	180	340	Jackson
Missouri.....	65	2,677	38.97	47.96	703	8	300	280	Jefferson City
Montana.....	143	131	0.91	251.47	24	2	580	315	Helena
Nebraska.....	75	1,056	13.78	321.15	25	8	415	205	Lincoln
Nevada.....	112	44	0.42	22.04	8	1	315	485	Carson City
N. Hampshire..	9	375	2.18	25.67	103	5	90	185	Concord
New Jersey....	8	1,441	193.82	41.63	780	20	70	160	Trenton
New York.....	47	5,981	125.95	35.39	3,599	46	320	310	Albany
N. Carolina...	50	1,617	33.30	62.19	62	5	520	200	Raleigh
North Dakota..	73	182	2.60	142.00	.....	.....	360	210	Bismarek
New Mexico...	121	144	1.25	26.78	.....	.....	350	390	Santa Fé
Ohio.....	39	3,666	90.10	43.07	1,159	29	365	210	Columbus
Oregon.....	95	312	3.32	190.87	56	2	375	290	Salem
Oklahoma.....	.....	61	.....	.....	.....	.....	230	205	Guthrie
Pennsylvania..	46	5,248	116.88	36.76	4,282	44	300	180	Harrisburg
Rhode Island..	1	345	318.44	28.61	272	10	35	50	New. & Prov.
S. Carolina....	29	1,147	38.16	21.64	78	3	235	215	Columbia
South Dakota..	73	327	4.28	370.29	10	1	380	245	Pierre
Tennessee....	45	1,763	42.34	94.73	202	5	430	120	Nashville
Texas.....	237	2,232	8.52	103.49	225	11	760	620	Austin
Utah.....	80	206	2.53	106.32	59	2	275	345	Salt Lake City
Vermont.....	10	332	36.39	19.96	26	2	90	155	Montpelier
Virginia.....	40	1,648	41.27	37.06	221	9	425	205	Richmond
West Virginia	23	760	30.95	31.33	53	3	200	225	Charleston
Washington...	69	349	5.22	1027.68	98	3	340	230	Olympia
Wisconsin....	53	1,683	30.98	71.01	424	17	290	300	Madison
Wyoming.....	93	60	0.62	193.86	11	1	365	275	Cheyenne
U. S.	2,915	62,480	21.31	48.80	20,314	448	2,720	1,600	Washington

a Decrease

The amount of debt to each inhabitant of the United States is a little over one-third the amount in 1870, when the country was just beginning to grapple with the war debt. The present debt is about 2½ per cent of the total wealth, while the average debt of Europe is equal to 8½ per cent of the wealth.

Good and bad make up a city.

Department of Agriculture.—Continued.

Chief Clerk, S. R. Burch,	\$2,000	Horticult'ist and Supt. of Gardens and	
Ch'f Bio. Chemic Div., Dr. E. A. de		Grounds, Wm. Saunders,	\$2,500
Schweinitz,	2,250	Curator Museum, N. Shatswell,	1,000
Ch'f Dairy Div., Henry E. Alvord,	2,500	Chief Engineer, John A. Harvey,	1,600
Ch'f Inspect'n Div., Dr. A. D. Melvin,	2,500		

SECRETARY OF AGRICULTURE.

The secretary of agriculture is charged with the supervision of all public business relating to the agricultural industry. He appoints all the officers and employes of the department, with the exception of the assistant secretary and the chief of the weather bureau, who are appointed by the president, and directs the management of all the divisions, offices, and bureaus embraced in the department. He exercises advisory supervision over the agricultural experiment stations deriving support from the national treasury, and has control of the quarantine stations for imported cattle, and of interstate quarantine rendered necessary by contagious cattle diseases.

ASSISTANTS.

The assistant secretary performs such duties as may be required by law or prescribed by the secretary. To his office has been assigned the control and direction of the scientific policy and operations of the following divisions and offices: The divisions of botany, vegetable physiology and pathology, pomology, chemistry, biological survey, soils, and agrostology and entomology; the offices of experiment stations and fiber investigation, and the department museum. All questions relating to the scientific operations and policy of the above-mentioned divisions, but involving questions of administrative policy, while primarily matters for the consideration of the assistant secretary, are submitted to the secretary for his approval before final action is taken.

The chief clerk has the general supervision of the clerks and employes; of the order of business, records, and correspondence of the secretary's office; of all expenditures from appropriations for contingent expenses, stationery, etc., of the enforcement of the general regulations of the department and of the buildings occupied by the department of agriculture.

WEATHER AND LIVE STOCK.

The chief of the weather bureau, under the direction of the secretary of agriculture, has charge of the forecasting of weather, the issue of storm warnings, the display of weather and flood signals for the benefit of agriculture, commerce, and navigation; the gauging and reporting rivers; the maintenance and operation of seacoast telegraph lines, and the collection and transmission of marine intelligence for the benefit of commerce and navigation; the reporting of temperature and rainfall conditions for the cotton interests; the display of frost and cold-wave signals; the distribution of meteorological information in the interests of agriculture and commerce, and the taking of such meteorological observations as may be necessary to establish and record the climatic conditions of the United States or as are essential for the proper execution of the foregoing duties.

The bureau of animal industry makes investigations as to the existence of contagious pleuropneumonia and other dangerous communicable diseases of live stock; superintends the measures for their extirpation, makes original investigations as to the nature and prevention of such

Office without pay makes thieves.

diseases, and reports on the condition and means of improving the animal industries of the country. It also has charge of the inspection of import and export animals, of the inspection of vessels for the transportation of export cattle, and of the quarantine stations for imported neat cattle; supervises the interstate movement of cattle, and inspects live stock and their products slaughtered for food consumption.

STATISTICS AND ACCOUNTS.

The statistician collects information as to crop production and the numbers and status of farm animals, through a corps of county and township correspondents and state agents, and obtains similar information from foreign countries through its special agent, assisted by consular, agricultural, and commercial authorities. He records, tabulates, and co-ordinates statistics of agricultural production, distribution, and consumption, the authorized data of governments, institutes, societies, boards of trade, and individual experts; and issues a monthly crop report for the information of producers and consumers.

The division of accounts and disbursements audits and pays all accounts and adjusts claims against the department; decides questions involving the expenditure of public funds; prepares advertisements, schedules, and contracts for annual supplies, leases, and agreements; issues requisitions for the purchase of supplies, requests for passenger and freight transportation; prepares the annual estimates of appropriations, and attends to all other business relating to the financial interests of the department.

EXPERIMENT STATIONS.

The office of experiment stations represents the department in its relations to the agricultural colleges and experiment stations, which are now in operation in all the states and territories. It seeks to promote the interests of agricultural education and investigation throughout the United States. It collects and disseminates general information regarding the colleges and stations, and publishes accounts of agricultural investigations at home and abroad. It also indicates lines of inquiry, aids in the conduct of co-operative experiments. It is also charged with investigations on the nutritive value and economy of human foods.

The division of chemistry makes investigations of the methods proposed for the analyses of soils, fertilizers, and agricultural products, and such analyses as pertain in general to the interests of agriculture. It investigates the composition and adulteration of foods and the composition of field products in relation to their nutritive value and to the constituents which they derive from the soil, fertilizers, and the air. It co-operates with the chemists of the agricultural experiment stations in all matters pertaining to the relations of chemistry to agricultural interests.

DIVISIONS OF SCIENCES.

The entomologist obtains and disseminates information regarding insects injurious to vegetation; investigates insects sent him in order to give appropriate remedies; conducts investigations of this character in different parts of the country, and mounts and arranges specimens for illustrative and museum purposes.

The division of biological survey studies the geographic distribu-

Catch the opportunity.

tion of animals and plants, and maps the natural life zones of the country; it also investigates the economic relations of birds and mammals, and recommends measures for the preservation of beneficial and the destruction of injurious species.

The division of forestry is occupied with experiments, investigations, and reports dealing with the subject of forestry, with the distribution of seeds of valuable economic trees, and with the dissemination of information upon forestry matters.

The division of botany investigates botanical agricultural problems, including the purity and value of agricultural seeds; methods of controlling the spread of weeds or preventing their introduction into this country; the dangers, effects, and antidotes for poisonous plants, the native plant resources of the country and other subjects of economic botany.

The division of agrostology is charged with the investigation of the natural history, geographic distribution, and uses of grasses and forage plants, their adaptation to special soils and climates, the introduction of promising native and foreign kinds into cultivation, and the preparation of publications and correspondence relative to those plants.

The pomologist collects and distributes information in regard to the pomological industry of the United States; investigates the habits and peculiar qualities of fruits, their adaptability to various soils and climates and conditions of culture, and introduces new and untried fruits from foreign countries.

The division of vegetable physiology and pathology has for its object a study of the normal and abnormal life processes of plants. It seeks by investigations in the laboratory and experiments in the field, to determine the causes of disease and the best means of preventing the same. It studies plant physiology in its bearing on pathology.

The office of fiber investigations collects and disseminates information regarding the cultivation of textile plants, directs experiments in the culture of new and hitherto unused plants, and investigates the merits of new machines and processes for textile manufactures.

The office of road inquiry collects information concerning the systems of road management throughout the United States, conducts investigations regarding the best method of road making, and prepares publications on this subject.

The division of publications exercises general supervision of the department printing and illustrations, and has charge of the distribution of all department publications with the exception of those turned over by law to the superintendent of documents for sale at the price affixed by him; it issues, in the form of press notices, official information of interest to agriculturists, and distributes to agricultural publications and writers synopses of department publications.

The division of gardens and grounds is charged with the care and ornamentation of the park surrounding the department buildings, and with the duties connected with the conservatories and gardens for testing and propagating exotic and economic plants.

Department of Labor.

Com'r of Labor, C. D. Wright, \$5,000 Chief Clerk, O. W. Weaver, \$2,000

The commissioner of labor acquires and diffuses among the people information on subjects connected with labor, its relations with capital,

Opportunity is the cream of time.

OUR OWN COUNTRY AND GOVERNMENT.

Population of the United States,

BY VOTING, SCHOOL AND MILITIA AGES.

Census of 1890. Given in thousands.

STATES AND TERRITORIES.	Voting Ages—Males, 21 Years and Over.						School Ages.		Militia Ages.
	Total.	Native Born.	Foreign Born.	Whites.	Colored	Percentage.		Total Pop'l't'n 5 to 20 yrs old.	Total Population, Males.
						Native.	Foreign		
Alabama.....	324	316	8	184	140	97.50	2.50	639	265
Arizona.....	23	13	10	21	2	57.67	42.33	18	19
Arkansas.....	257	249	8	188	69	96.80	3.20	476	214
California.....	462	230	232	390	72	49.79	50.21	360	343
Colorado.....	164	114	50	161	3	69.48	30.52	113	140
Connecticut.....	224	145	78	220	3	65.01	34.99	221	163
Delaware.....	47	41	6	40	7	87.06	12.94	57	36
Dist. of Columbia,	64	55	9	46	18	85.67	14.33	74	47
Florida.....	96	85	10	58	38	88.93	11.07	155	79
Georgia.....	398	391	6	219	179	98.25	1.75	771	336
Idaho.....	31	19	11	29	1	62.83	37.17	27	24
Illinois.....	1,072	682	390	1,054	18	63.61	36.39	1,323	852
Indiana.....	595	521	73	581	13	87.67	12.33	785	455
Iowa.....	520	364	155	517	3	70.08	29.92	701	399
Kansas.....	383	310	73	370	12	80.93	19.07	540	295
Kentucky.....	450	420	29	387	63	93.39	6.61	727	361
Louisiana.....	250	225	25	130	119	89.88	10.12	455	205
Maine.....	201	170	30	200		84.86	15.14	201	133
Maryland.....	270	228	42	218	51	84.27	15.73	370	205
Massachusetts....	665	407	257	657	7	61.34	38.66	650	499
Michigan.....	617	369	248	611	6	59.78	40.22	703	462
Minnesota.....	376	154	221	374	2	41.15	58.85	454	304
Mississippi.....	271	266	5	120	150	98.14	1.86	559	228
Missouri.....	705	584	120	667	38	82.89	17.11	1,008	566
Montana.....	65	35	29	61	3	54.18	45.82	30	55
Nebraska.....	301	205	95	297	4	68.20	31.80	384	255
Nevada.....	20	10	10	17	3	48.59	51.41	12	14
New Hampshire..	118	92	26	117		77.95	22.05	106	79
New Jersey.....	413	268	145	398	14	64.92	35.08	464	313
New Mexico.....	44	38	6	41	3	84.97	15.03	52	36
New York.....	1,769	1,084	68	1,745	24	61.27	38.73	1,836	1,325
North Carolina...	342	340	2	233	109	99.39	0.61	673	273
North Dakota....	55	19	36	55		35.11	64.89	59	48
Ohio.....	1,016	797	218	990	25	78.47	21.53	1,271	767
Oklahoma.....	19	17	1	18		91.34	8.66	21	15
Oregon.....	111	74	37	102	9	66.52	33.48	103	88
Pennsylvania....	1,461	1,064	397	1,426	34	72.81	27.19	1,791	1,140
Rhode Island...	100	59	40	97	2	59.82	40.18	105	75
South Carolina...	235	232	3	102	132	98.55	1.45	501	196
South Dakota....	96	53	42	96		55.65	44.35	113	79
Tennessee.....	402	391	11	310	92	97.26	2.74	720	324
Texas.....	535	460	75	434	101	85.96	14.04	924	447
Utah.....	54	29	24	53	1	54.98	45.02	79	45
Vermont.....	101	82	19	101		80.64	19.36	101	67
Virginia.....	378	367	11	248	130	97.01	2.99	671	295
Washington.....	146	88	57	141	4	60.56	39.44	97	124
West Virginia...	181	171	90	172	9	94.60	5.40	305	147
Wisconsin.....	461	217	244	459	1	47.07	52.93	603	347
Wyoming.....	27	17	9	26		66.01	33.99	16	24
Total.....	16,940	12,591	4,348	15,199	1,740	74.33	25.67	22,447	13,230

One hand in the United States produces as much as four in Europe.

In New England 528 people in each thousand live in cities, while in the south only 98 people in 1000 are urban dwellers.

One-half the world's inhabitants are occupied in farming, one-fourth in manufactures, one-tenth in trade and the remaining 15 per cent in professional pursuits, etc.

Happy he who is content.

hours of labor, earnings, etc., in this country and foreign countries, also in regard to effect of customs laws upon currency and upon agriculture. He must report upon the condition of industries once in two years and issue a report to president and senate once a year. A bulletin is also issued once in two months.

Bureau of American Republics.

Director, Clinton Furbish.

This department is organized for the collection and distribution of commercial information about the republics of America. Those wishing information of this sort should apply to the bureau.

Civil Service Commission.

Commissioner and President, J. R. Proctor, \$3,500.

The duty of the civil service commission is to regulate and conduct the examinations under the civil service act by which candidates are appointed to certain of the government offices. The method of application for these positions is described elsewhere under the article "To secure a government position."

Commission of Fish and Fisheries.

Fish Commissioner, John J. Brice.

The United States Fish commission is maintained for the development of the resources of fisheries, the work including the propagation of useful food fishes. An annual report is issued. A list of the twenty-two stations of the commission is given elsewhere. There are also four distributing cars, two steam vessels and one sailing vessel.

Interstate Commerce Commission.

Chairman, Wm. R. Morrison,	\$7,500	Com'er, Judson C. Clements,	\$7,500
Com'er, Wheelock G. Veazey,	7,500	Com'er, James D. Yeomans,	7,500
Com'er, Martin A. Knapp,	7,500	Secretary, Edward A. Moseley,	3,500

This commission has authority to inquire into the management of the business of all common carriers who are subject to the provisions of the act to regulate commerce, passed by congress in 1887. It has jurisdiction over rates of interstate traffic. The commission makes an annual report.

Intercontinental Railway Commission.

Com'er, President, A. G. Cassatt.	Com'er, R. C. Kerens.
Com'er, Henry G. Davis.	Secretary, E. Z. Steever.

This commission was organized for the examination of the possible routes and preparation of reports on their length, cost, and advantages, together with the conduct of proper surveys for an intercontinental railway to connect the United States of America and the other republics of the American continent.

'Tis good grafting on a good stock.

ALABAMA, "Cotton Plantation State."

Governor, Joseph F. Johnston,	\$3,000	Treasurer, Geo. W. Ellis,	\$2,100
Sec. of State, James K. Jackson,	1,800	Att'y Gen., Wm. C. Fitts,	2,500
Auditor, Walter S. White,	1,800	Sup't Public Inst'n, J. O. Turner,	2,250
Chief Justice, Robert C. Brickell,	3,600	Com'r Agri., I. F. Culver,	2,100

The name is of Indian origin and signifies, "Here we rest," said to have been the exclamation of an exiled chief upon reaching the banks of the Alabama river. De Soto explored the region in 1541. It was settled in 1702, became part of the territory of Mississippi in 1802 and was admitted to the union in 1819. The governor and chief executive officers are elected once in two years and the legislature has biennial sessions. The counties are divided into "beats" or precincts, instead of townships. Besides the supreme court there are ten circuit districts, five chancellors of the courts of chancery, and many probate courts. With an area greater than that of England, the state contains within itself the resources of a nation. The rich farming land of the Tennessee valley produces luxuriant crops of grain and grasses. The mineral region of the northeast contains rich mines of coal, iron and limestone. The development of the iron industry has been the trade feature of recent years. Cotton is still the great staple, but the production of grain, dairy products, fruit and vegetables is increasing, more attention being paid to diversified farming and to raising home supplies on the farm. The soil, except in the southern section, is rich and responds freely to improved machinery and cultivation. Much attention is now being given to stock raising and truck farming. The so-called "Black belt" is a great cotton-producing region, where the negroes are more numerous than the whites. The forest region, next the coast, produces vast quantities of lumber and tree products. The state is fast coming to the front with the new methods of agriculture and the rapid growth of manufactures.

ALASKA, "Uncle Sam's Ice-Box."

Governor, James Sheakley,	\$3,000	Sup't Pub. Inst'n, Sheldon Jackson,	\$1,200
Sec. of Territory, C. D. Rogers,	2,500		

The value and resources of Alaska have been commonly underestimated, as indicated by the popular title above mentioned. In point of fact, the climate of southern Alaska and of some of the coast islands is more even than that of New England, with milder winters than those of New York. The rainfall is very heavy, from 50 to 136 inches per year, and the climatic conditions somewhat resemble those of northern Scotland. The territory extends north and south a distance equal to that from Maine to Florida, while the extension from the eastern side to the farthest islands equals the distance from Virginia to California. Hence the conditions are varied. In the far north the furs and the salmon fisheries supply the chief items of production. During the past few years, considerable sums have been expended in the introduction of reindeer, to supply food and serve as beasts of burden.

A great source of wealth is the salmon fishery. The salmon rivers are as full of fish as ever, although more than 144,000 tons have been taken during the past twelve years. Agriculture has received little attention, but forage and root crops can be grown in many sections of

the country, and there is a future for stock and dairy farming to meet the demands of the miners. The white population of the territory, upon the basis of the governor's estimate, is about 10,000 for 1897. The estimated area is about 577,000 square miles.

The gold mining industry is attracting special attention. To Oct 1, 1896, gold to the value of \$2,300,000 had been taken from the mines and the total has since been largely increased by new discoveries. Thousands of fortune seekers have been flocking to the placer mines of the Yukon. Gov. Sheakley, however, writes by way of caution: "This is no poor man's country; no one should arrive here with less than \$500; the road is long, supplies are costly, seasons are short, and fortune fickle; failure to find gold the first season entails suffering upon those whose funds are insufficient to carry them through the long winter when absolutely nothing can be done; not one in a hundred makes a strike the first season. Inexperienced persons, unless prepared for long-extended delays, should stay away; gold finding is a science which can be acquired only in its native fields, and the art must be mastered elsewhere, for in Alaska there is no time for pondering; action must be quick and sharp or the season is lost."

The seal fisheries of the Pribilof islands have yielded a rental revenue sufficient to repay the government the entire purchase price of Alaska. The name, Alaska, came from an Indian word meaning, "the large country."

The government is not the regular territorial form. The officers appointed by the president of the United States are: Governor, salary, \$3000; marshal, judge, clerk and four commissioners. Sale of liquor as a beverage is prohibited by law, and during the past year many cases of illegal selling were prosecuted.

ARIZONA, "The Sunset Land."

Governor, Benj. J. Franklin,	\$2,600	Chief Justice, A. C. Baker,	\$3,600
Sec. of State, Chas. H. Akers,	1,800	Treasurer, T. E. Farish,	1,000
Controller or Auditor, C. P. Leitch,	1,800	Atty Gen., Edward Schwartz	500
Sup't of Public Institutions, Board of Control, Gov. and Citizen Members.			

This territory was obtained from Mexico, part by the treaty of 1848 and part by the Gadsden purchase in 1853. In the early days of its history, the Indians caused much trouble to the settlers, until the various tribes were placed upon reservations in 1876, and even since then, several outbreaks have occurred. The area of the state is equal to that of New York and New England together; extending 350 miles east and west and 400 miles north and south. The wide volcanic plateaus are a striking feature of the scenery, also the arid plains and deep river gorges. The territory lies in the basin of the Colorado river, of which the gorge extends 300 miles with steep walls 3000 to 6000 feet high. Arizona is rich in minerals, especially in gold, silver, copper and lead. Farming by irrigation has reached a high development in the valleys of the Gila, Salt and other rivers. When supplied with water, the land is capable of producing several crops per year. The cities are well built and modern. Phoenix, the capital, is the center of a productive irrigated district. The mountain sections are devoted to stock farming and mining.

The more I saw of foreign lands, the more I loved my own.—De Belloy.

State Legislatures.

STATES AND TERRITORIES.	Next Session Begins.	Ann. or Bien.	Limit of Session.	Salaries of Members, Annual or Per Diem, while in Session.	TERMS OF MEMBERS, YEARS.		Representatives.	State Senators.	Time of Next State or Territorial Election.
					Senators.	Representatives.			
Alabama.....	Nov. 7, 1898	Bien.	50 dys.	\$4 per diem..	4	2	100	33	Aug. 1, 1898
Arizona.....	Jan. 16, 1899	Bien.	60 dys.	\$4 " "	2	2	24	12	.....
Arkansas.....	Jan. 15, 1899	Bien.	60 dys.	\$6 " "	4	2	100	32	Sept. 5, 1898
California.....	Jan. 2, 1899	Bien.	60 dys.	\$8 " "	4	2	80	40	Nov. 8, 1898
Colorado.....	Jan. 4, 1899	Bien.	90 dys.	\$7 " "	4	2	65	35	Nov. 8, 1898
Connecticut...	Jan. 4, 1899	Bien.	None.	\$300 ann.....	2	2	252	24	Nov. 8, 1898
Delaware.....	Jan. 3, 1899	Bien.	None.	\$3 per diem..	4	2	21	9	Nov. 6, 1900
Florida.....	Apr. 4, 1899	Bien.	60 dys.	\$6 " "	4	2	68	32	Nov. 6, 1900
Georgia.....	Oct. 25, 1899	Ann.	50 dys.	\$4 " "	2	2	175	44	Oct. 5, 1898
Idaho.....	Jan. 2, 1899	Bien.	60 dys.	\$5 " "	2	2	36	18	Nov. 8, 1898
Illinois.....	Jan. 4, 1899	Bien.	None.	\$5 " "	4	2	153	51	Nov. 8, 1898
Indiana.....	Jan. 5, 1899	Bien.	60 dys.	\$6 " "	4	2	100	50	Nov. 8, 1898
Iowa.....	Jan. 16, 1898	Bien.	None.	\$500 per term	4	2	100	50	Nov. 7, 1899
Kansas.....	Jan. 10, 1899	Bien.	50 dys.	\$3 per diem..	4	2	125	40	Nov. 8, 1898
Kentucky.....	Jan. 3, 1898	Bien.	60 dys.	\$5 " "	4	2	100	38	Nov. 7, 1899
Louisiana.....	May 8, 1898	Bien.	60 dys.	\$4 " "	4	4	98	37	Apr. 21, 1900
Maine.....	Jan. 4, 1899	Bien.	None.	\$150 ann.....	2	2	151	31	Sept. 12, 1898
Maryland.....	Jan. 5, 1898	Bien.	90 dys.	\$5 per diem..	4	2	91	26	Nov. 8, 1898
Massachusetts	Jan. 5, 1898	Ann.	None.	\$750 ann.....	1	1	240	40	Nov. 1, 1898
Michigan.....	Jan. 4, 1899	Bien.	None.	\$3 per diem..	2	2	100	32	Nov. 8, 1898
Minnesota....	Jan. 3, 1899	Bien.	90 dys.	\$5 " "	4	2	114	54	Nov. 8, 1898
Mississippi....	Jan. 3, 1898	Bien.	30 dys.	\$400 ann.....	4	4	133	45	Nov. 7, 1899
Missouri.....	Jan. 4, 1899	Bien.	70 dys.	\$5 per diem..	4	2	140	34	Nov. 8, 1898
Montana.....	Jan. 2, 1899	Bien.	60 dys.	\$6 " "	4	2	61	21	Nov. 6, 1900
Nebraska.....	Jan. 3, 1899	Bien.	60 dys.	\$5 " "	2	2	100	33	Nov. 8, 1898
Nevada.....	Jan. 16, 1899	Bien.	60 dys.	\$8 " "	4	2	30	15	Nov. 8, 1898
N. Hampshire,	Jan. 4, 1899	Bien.	None.	\$200 ann.....	2	2	363	24	Nov. 8, 1898
New Jersey...	Jan. 19, 1898	Ann.	None.	\$500 " "	3	1	60	21	Nov. 8, 1898
New Mexico...	Jan. 16, 1899	Bien.	60 dys.	\$4 per diem..	2	2	24	12	Nov. 8, 1898
New York.....	Jan. 5, 1898	Ann.	None.	\$1,500 ann....	2	1	128	32	Nov. 8, 1898
N. Carolina...	Jan. 4, 1899	Bien.	60 dys.	\$4 per diem..	2	2	120	50	Nov. 6, 1900
North Dakota.	Jan. 3, 1899	Bien.	60 dys.	\$5 " "	4	2	62	31	Nov. 8, 1898
Ohio.....	Jan. 3, 1898	Bien.	None.	\$600 ann.....	2	2	107	31	Nov. 7, 1899
Oklahoma.....	Jan. 10, 1899	Bien.	60 dys.	\$4 per diem..	2	2	26	13	.....
Oregon.....	Jan. 9, 1899	Bien.	40 dys.	\$3 " "	4	2	60	30	June 6, 1898
Pennsylvania.	Jan. 3, 1899	Bien.	None.	\$1,500 ann....	4	2	204	50	Nov. 8, 1898
Rhode Island.	Jan. 25, 1899	Ann.	None.	\$1 per diem..	1	1	72	37	Apr. 6, 1898
S. Carolina....	Jan. 11, 1898	Ann.	None.	\$4 " "	4	2	124	36	Nov. 8, 1898
South Dakota.	Jan. 3, 1899	Bien.	60 dys.	\$5 " "	2	2	83	43	Nov. 8, 1898
Tennessee....	Jan. 3, 1899	Bien.	75 dys.	\$4 " "	2	2	99	38	Nov. 8, 1898
Texas.....	Jan. 3, 1899	Bien.	90 dys.	\$5 " "	4	2	108	31	Nov. 8, 1898
Utah.....	Jan. 12, 1899	Bien.	60 dys.	\$4 " "	4	2	24	12	Nov. 6, 1900
Vermont.....	Oct. 5, 1898	Bien.	None.	\$3 " "	2	2	245	30	Sept. 6, 1898
Virginia.....	Dec. 7, 1899	Bien.	90 dys.	\$4 " "	4	2	100	30	Nov. 4, 1901
Washington...	Jan. 12, 1899	Bien.	60 dys.	\$5 " "	4	2	78	34	Nov. 8, 1898
West Virginia.	Jan. 9, 1899	Bien.	45 dys.	\$4 " "	4	2	71	26	Nov. 8, 1898
Wisconsin.....	Jan. 11, 1899	Bien.	None.	\$500 reg. ses..	4	2	100	33	Nov. 8, 1898
Wyoming.....	Jan. 10, 1899	Bien.	40 dys.	\$5 per diem..	4	2	37	18	Nov. 7, 1899

The average acreage of farms in the United States is 70 acres, which is the same as forty years ago, although there are nearly three times as many farms now as then.

The annual accumulation of wealth per inhabitant between 1850 and 1890 averaged \$28 in New England, \$38 in the Middle states, \$14 in the South, \$49 in the West and \$35 for the whole Union.

The grain area of the United States is larger than Germany, hay is cut from a surface equal to that of Great Britain, while the cotton fields aggregate as large as Holland and Belgium together.

He is happy who knows his good fortune.

ARKANSAS, "The Bear State."

Governor, D. W. Jones,	\$3,000	Chief Justice, Henry G. Bunn,	\$3,000
Sec. of State, A. C. Hull,	1,800	Land Com'r, J. F. Richie,	
†Auditor, Clay Sloan,	2,250	Sup't Public Inst'n, Junius Jordan,	1,600
Treasurer, Ransom Gulley,	2,250	Com'r Agri., W. G. Vincenher,	
Att'y Gen., E. B. Kinsworthy,			
*\$500 for rent of house. †Also insurance commissioner.			

The first white settlement was at Arkansas Post in 1686. The country was originally a part of the Louisiana purchase. It was admitted as a state in 1803. The area of Arkansas is larger than New York state, and if settled as thickly as Massachusetts, it would support twelve millions of people. Much of the best land is still unoccupied. There are thousands of miles of navigable rivers. The climate has caused the state to be sometimes styled the Italy of America because of the equality of temperature. Agriculture is an important interest, the proportion of rural population being greater than in any other state. About 95 per cent of the total area is capable of cultivation. Cotton, grain, vegetables and fruits are leading products; the apple growing district of the Ozark mountains is attracting much attention. The state is rich in minerals, which include rich deposits of coal, zinc and silver. The districts of the mineral hot springs are popular health resorts. Manufacturing interests have developed rapidly in recent years. The school system is good, and in proportion to its valuation Arkansas is paying more for educational purposes than is any other state.

CALIFORNIA, "The Golden State."

Governor, Hon. James H. Budd,	\$6,000	Treasurer, Levi Rackliffe,	\$3,000
Lieut. Gov., Wm. T. Jeter, \$10 p'r d'y	60 d's	Adj't Gen., A. W. Barrett,	3,000
Sec. of State, L. H. Brown,	3,000	Sup't Public Inst'n, S. T. Black,	3,000
Controller, E. P. Colgan,	3,000	Insurance Com'r, A. J. Clunie,	
Chief Justice, W. H. Beatty,	6,000	Com'r of Agri., S't B'd of Agri.,	No pay
Com'r Public Works, E. E. Leake,	3,000		

For its abundance of the yellow metal, as well as for the golden fruits and golden grain, California has been well termed the Golden State. The name, California, is derived either from an old Spanish romance by that title, or from Caliente Fornalla, meaning "hot furnace," in allusion to the hot, dry climate of the southern interior valleys. It was formerly a part of Mexico. Soon after its conquest from that nation, gold was discovered in 1848, and the land was quickly filled with fortune seekers, becoming powerful enough to be set off as a state in 1850. The gold boom has been followed by colonization enterprises and development of fruit growing and general farming; one source of attraction after another having drawn new immigrants and fast developing the mighty resources of the state. The climate includes many varieties and is in general very remarkable for its healthfulness. The northern coast country is rainy, the southern coast mild and even, the interior valleys have hot, dry summers and colder winters than the coast. Upon the whole the climate is probably the finest in the United States and the southern portion is much sought by invalids. California is more than double the size of New England, and with a great variety and extent of resources. The 1000 miles of coast line afford a few good harbors. The Yosemite valley contains within a small area some of the most wonderful scenery in the world. The giant trees, the caves, natu-

The land of the free and the home of the brave.—Key.

ral bridges, seashore resorts of the state, are additional attractions to visitors. Production of gold was largest in 1852 and is still important. Quicksilver, coal, petroleum and various minerals are obtained. The state is first in gold and in grape culture. Agriculture is the more permanent source of the state's prosperity. The day of the old style ranch, with its grain and cattle, is rapidly passing, to be replaced by small farms and colonies, devoted to dairying and general farming in the north and to fruit growing in the south. The best opening in California at present is not for miners but for skilled farmers competent to carry on a high grade of agriculture. Millions of dollars are invested in irrigation and the state is fast becoming one of the garden spots of the world.

COLORADO, "The Centennial State."

Governor, Alva Adams,	\$5,000	Treasurer, Geo. E. Kephart,	\$6,000
Lieut. Gov., Jared L. Brush,	1,000	Adj't Gen., Cassius M. Moses,	1,800
Sec. of State, C. H. S. Whipple,	3,000	Sup't Pub'c Inst'n, Grace E. Patton,	3,000
Auditor, John W. Lovell,	2,500	Insurance Com'r, John F. Vivian,	3,000
Ch'f Justice, Chas. J. Hayt,	5,000	Land Com'r, L. C. Paddock,	2,000
State Engin'r, John E. Field,	3,000		

Discovery of gold in the tributaries of the Platte river drew attention to this region in 1858, although Americans had previously explored the section under Pike and Fremont. The territory was organized in 1861 and admitted as a state in 1876, the anniversary of the national declaration of independence, hence the title "Centennial state." The shape of Colorado is that of a perfect rectangle, the only state thus outlined. The area is two and one-half times that of Ohio, or equal to New England and Ohio together, and its varied resources make the state an inland empire in itself. The eastern plains comprise about one-third of the area; level, destitute of timber, and covered with rich buffalo grass, and very productive under irrigation. The general surface of the state is very mountainous, with extensive forests and elevated mountain parks. Four-fifths of the area is from 4000 to 10,000 feet above sea level. The effect of this elevation, as regards the inhabitants, is stimulating and upon the whole, healthful. Consumptives from the eastern states often find relief and cure in the dry and rarified air. Colorado abounds in almost every variety of natural resource. The wealth of the mines of gold and silver is famous the world over. Coal, gas and oil, lead, iron and coal are all abundant. The state is first in production of silver and of lead. Agricultural resources are rapidly being developed. Millions of acres have been brought under irrigation, of which the cost per year varies, but is usually about \$2 per acre. One canal alone is 54 miles long and waters 120,000 acres. The state is divided into five water divisions, each having its superintendent of irrigation to distribute the water and to adjust the many puzzling disputes as to ownership of water rights. Agricultural staple crops are produced in great quantities, including wheat, oats, corn, barley, potatoes, hay, vegetables and fruits. "Watermelon day has become a feature." Peaches flourish in some sections. Alfalfa has become a leading crop, yielding three cuttings per year, which are fed to live stock. Cattle raising is still important, but is now mostly conducted on farms rather than on large ranches.

Liberty and Union now and forever.—Webster.

CONNECTICUT, "Land of Steady Habits."

Governor, Lorrin A. Cooke,	\$4,000	Contrôller, Benj. P. Mead,	\$1,500
Lieut. Gov., James D. Dewell,	500	Treasurer, C. W. Grosvenor,	1,500
Sec. of State, Charles Phelps,	1,500	Chief Justice, Chas. B. Andrews,	5,500

The first permanent settlements were made in 1634-36. The state accepted the federal constitution in 1788. The senate consists of not less than eighteen, or more than twenty-four members from districts determined by the general assembly according to population. Two representatives to the house are sent from towns incorporated before 1785 or having over 5000 population; other towns send one representative. Each legislator is paid \$300 per year. Legislature has power to grant pardons. The surface of the state is rolling, but with few high mountains. The Connecticut is the largest river in New England and navigable for small vessels as far as Hartford. The name of the state comes from an Indian word meaning, the land on a long tidal river. Agriculture is somewhat favored by the climate which is considerably milder than that of the region north of Cape Cod and the growing seasons are longer. In the rich valleys of the larger rivers, tobacco is extensively grown. The country is in general well adapted for dairying. The rapid growth of the manufacturing centers has greatly increased the demand for fruit and market garden products, which have become important branches of farming. Manufactures are very extensive and varied, and much of the prosperity of all classes is a result of the ingenuity of the "Connecticut Yankee" mechanics. To sum up the manufactures of Connecticut is like quoting a list of the material needs of civilization. Their number and scope is so extensive that the hard times have been less noticed than in sections devoted wholly to specialties. A novel line of business, that of fire and life insurance, has reached great proportions and is represented by vast capital centered at Hartford, where the first insurance policy in the United States was written more than a hundred years ago.

DELAWARE, "The Diamond State."

Governor, Ebe W. Tunnell,	\$2,000	Ch'f Justice, Chas. B. Love,	\$3,000
Lieut. Gov., To be elect'd in 1900, new cons'n		Treasurer, W. M. Ross,	1,450
Sec. of State, James H. Hughes,	Fees, 1,000	Adj' Gen., Garrett J. Hart,	400
Auditor, Dr. B. L. Lewis,	1,200	Insurance Com'r, Dr. Edward Fowler,	1,500

This state, the second smallest in the Union, has had an eventful history. Settled by the Swedes in 1639 on the present site of Wilmington, the territory was held in succession by Sweden, Holland, England, Holland again, and finally by England once more. In 1776 a state constitution was framed. Delaware was one of the few slave-holding states which did not join the Confederacy in 1861. Situated between Chesapeake and Delaware bays, the state is well supplied with communication by water and the climate is quite mild and even. Wheat is grown extensively and great quantities of peaches are shipped to the large cities of the country. Fruit and vegetables are canned in large quantities. The strawberry crop amounts to millions of baskets. Fish and oysters abound in the inlets along the coast. The Chesapeake and Delaware canal is 13½ miles long. Manufactures are an important interest in the northern part of the state, machinery, cotton, woolen and leather goods, flour, gunpowder and iron ships being specialties. Concerning

A boot from my own country, let it even be patched.

Distances Between American Cities.

As indicated by the official postal guide, showing the distance by shortest routes and time in transit by fast trains from New York City.

CITIES IN UNITED STATES.	Miles.	Hours.	CITIES IN UNITED STATES.	Miles.	Hours.	CITIES IN UNITED STATES.	Miles.	Hours.
Albany, N. Y.....	142	4 $\frac{1}{2}$	Des Moines, Ia.....	1,257	37 $\frac{1}{2}$	Portland, Me.....	325	12
Atlanta, Ga.....	882	24 $\frac{1}{4}$	Detroit, Mich.....	743	25	Portland, Ore.....	3,181	114 $\frac{1}{2}$
Baltimore, Md.....	188	6	Galveston, Tex.....	1,789	56 $\frac{1}{2}$	Prescott, Ariz.....	2,724	94
Bismarck, N. Dak...	1,738	60 $\frac{1}{2}$	Harrisburg, Pa.....	182	6	Providence, R. I....	189	6
Boisé City, Idaho...	2,736	92 $\frac{1}{2}$	Hartford, Ct.....	112	4	Richmond, Va.....	344	11 $\frac{1}{2}$
Boston, Mass.....	217	5	Helena, Mont.....	2,423	89	St. Louis, Mo.....	1,048	29
Buffalo, N. Y.....	410	11 $\frac{1}{2}$	Hot Springs, Ark...	1,367	55	St. Paul, Minn.....	1,300	37
Cape May, N. J.....	172	6	Indianapolis, Ind...	808	23	Salt Lake City, Utah	2,452	71 $\frac{1}{2}$
Carson City, Nev...	3,036	109	Jacksonville, Fla...	1,077	31 $\frac{1}{2}$	San Francisco, Cal.	3,250	124 $\frac{1}{2}$
Charleston, S. C....	804	21 $\frac{1}{4}$	Kansas City, Mo...	1,302	38 $\frac{1}{4}$	Savannah, Ga.....	905	26
Chattanooga, Tenn.	853	32	Louisville, Ky.....	854	34	Tacoma, Wash.....	3,209	127
Cheyenne, Wyo.....	1,899	56	Memphis, Tenn.....	1,163	40	Topeka, Kan.....	1,370	40
Chicago, Ill.....	900	25	Milwaukee, Wis.....	995	29 $\frac{1}{4}$	Trenton, N. J.....	57	2
Cincinnati, O.....	744	23 $\frac{1}{2}$	Montgomery, Ala...	1,057	30 $\frac{1}{2}$	Vicksburg, Miss....	1,288	50
Cleveland, O.....	568	19 $\frac{1}{2}$	Montpelier, Vt.....	327	10 $\frac{1}{4}$	Vinita, Ind. Ter....	1,412	42
Columbus, O.....	624	20	New Orleans, La....	1,344	40	Washington, D. C...	228	6 $\frac{1}{2}$
Concord, N. H.....	292	9 $\frac{1}{2}$	Omaha, Neb.....	1,383	43	Wheeling, W. Va....	496	16 $\frac{1}{2}$
Deadwood S. Dak...	1,957	65 $\frac{1}{2}$	Philadelphia, Pa...	90	3	Wilmington, Del....	117	20
Denver, Col.....	1,930	60 $\frac{1}{2}$	Pittsburg, Pa.....	431	13	Wilmington, N. C...	593	5

Recent Administrations.

ADMINISTRATION, 1889-1893.				ADMINISTRATION, 1893-1897.			
Office.	Name.	Residence.	Assumed Office.	Office.	Name.	Residence.	Assumed Office.
President	Benj. Harrison	Ohio	1889	President	G. Cleveland	N. Y.	1893
Vice Pres.	Levi P. Morton	Vt.	1889	Vice Pres.	A. E. Stevenson	Ky.	1893
Sec's of	James G. Blaine	Me.	1889	Sec's of	W. Q. Gresham	Ill.	1893
State	John W. Foster	Ind.	1892	State.	Richard Olney	Mass.	1895
Sec's of	Redfield Proctor	Vt.	1889	Sec.Treas.	John G. Carlisle	Ky.	1893
War	S. B. Elkins	W. Va.	1891	Sec. War	Dan'l S. Lamont	N. Y.	1893
Sec's of	Wm. Windom	Minn.	1889	Sec's of	Hoke Smith	Ga.	1893
Treas.	Chas. Foster	Ohio	1891	Interior	D. R. Francis	Mo.	1896
Att'y Gen.	W. H. H. Miller	Ind.	1889	Sec. Navy	H. A. Herbert	Ala.	1893
P. M. Gen.	J. Wannamaker	Pa.	1889	Sec. Agri.	J. S. Morton	Neb.	1893
Sec. Navy	B. T. Tracy	N. Y.	1889	P. M. Gen.	Wilson S. Bissell	N. Y.	1893
Sec. Inter.	J. W. Noble	Mo.	1889		Wm. L. Wilson	W. Va.	1895
Sec. Agri.	J. M. Rusk	Wis.	1889	Att'y Gen.	Richard Olney	Mass.	1893
					Judson Harmon	Ohio	1895

For administration, 1897-1901, see directory of government.

In all the states and territories except four, the governors have the right to veto bills passed by the legislature.

A majority vote of the members of each house present can repass a bill vetoed by the governor in the following states: Connecticut and Vermont.

A majority vote of the whole number of members elected to each house of the legislature can repass a bill vetoed by the governor in the following states: Alabama, Arkansas, Indiana, Kentucky, New Jersey, Tennessee and West Virginia.

The governor may disapprove of items in the appropriation bills, and they shall be void unless repassed according to the rules prescribed for the passage of bills over the executive veto, in Florida, Georgia, Nebraska, New Jersey, New York and Texas.

Greatness alone is not enough, for the cow would outrun the hare.

the financial conditions of Delaware, a notable fact is that the state is practically out of debt. Income is obtained from licenses, corporation taxes and the like. There is no actual property tax. The governor is elected for four years and appoints judges and executive officers, but has no veto power. The legislature comprises three senators and seven representatives from each county. Sessions are held at Dover on the odd-numbered years. Delaware townships are called hundreds. Every "hundred" which by taxation or subscription supports a free school is entitled to a share of the permanent public school funds.

DISTRICT OF COLUMBIA.

In order to free the seat of national government from any possible conflict with state authority, the location of the national capital was offered to congress in 1788. In 1791 the new territory was officially styled the District of Columbia, and the city, already laid out in a splendid series of avenues, was called Washington. The city had only 3000 inhabitants in 1800. It was captured by the British during the war of 1812 and the public buildings destroyed. During the civil war the capture of the city several times appeared imminent, but was each time averted. Extensive improvements were made; from 1871 to 1881, the sum of \$25,000,000 was expended, and the prosperity of the city at once began to expand. The district is governed by congress, but the municipal executive powers are lodged in three commissioners; two of them citizens of the District and one appointed by the president. The law is the common law of England, with acts of the state of Maryland and modified directly by congress. Although the people cannot vote on local or national affairs, the city is considered one of the best managed in the country. Washington is surrounded by a region of farms and market gardens, and the public markets are supplied with a great abundance and variety, the products being those of the state adjoining. Hardwood trees abound and the 120 miles of city streets contain an average of 1000 shade trees to the mile.

FLORIDA, "The Everglade State."

Governor, Wm. D. Bloxham,	\$3,500	Att'y Gen., Wm. B. Lamar,	\$1,500
Sec. of State, J. L. Crawford,	1,500	Ch'f Justice, M. H. Mabry,	3,000
Controller, W. H. Reynolds,	2,000	Sup't Public Inst'n, Wm. N. Sheats,	1,500
Treasurer, C. B. Collins,	2,000	Com'r Agri., L. B. Wombwell,	1,500

The earliest settlements in North America were made in Florida. The Spanish settlement of St. Augustine was made in 1565. The country was permanently ceded to the United States in 1819, after which its development was rapid. Owing to its warm, semi-tropical climate the agricultural possibilities of Florida are great. This state has a monopoly of such crops as coffee, cocoanuts, pineapples, etc. Florida oranges are the standard of quality in eastern markets. Almost any crops of temperate and sub-tropical climates can be grown here. Of recent years the production of winter vegetables for the northern markets has become an important specialty. The rainfall is abundant, and owing to the peculiar geological structure, underground supplies of water for irrigation can often be easily obtained. Extensive deposits of phos-

A good citizen owes his life to his country.

phate rock have been developed with a capital of many millions. Game and fish abound in all parts of the state. The region has become a favorite resort of tourists and sportsmen. Of late years, many colonies of northern people have been located, attracted by the mild climate and abundant resources of the state. The fisheries employ about 10,000 men and are the most extensive in the South. Sponges are an important product. There are 1200 miles of river navigation. The inland swamp regions cover vast areas which are gradually being reclaimed for the production of sugar cane and fruit.

GEORGIA, "The Empire State of the South."

Governor, Wm. Y. Atkinson,	\$3,000	St'e Engineer, J. B. Warren, Fees and	\$1,200
Sec. of State, Allen D. Candler,	2,000	Treasurer, W. J. Speer, Fees and	2,000
Auditor, Wm. A. Wright,	2,000	Adj't Gen., J. McIntosh Kell,	2,000
Ch'f Justice, T. J. Simmons,	3,000	Com'r of Agri., R. T. Nesbitt,	2,000

In distinction from the other states Georgia was the only one of the thirteen original states of which the settlement was a government enterprise. Sir James Oglethope made the first settlement in 1733 at Savannah. The state was the scene of important military operations during the Revolution. In the course of the civil war Georgia was also a battle ground of contending forces, but at present no state has a more promising outlook. Both agriculture and manufactures have taken a new lease of life. The stimulating effect of the Atlanta exposition is still felt. Having the largest area of any state east of the Mississippi and possessing boundless natural wealth, the future of the state is very promising. The range of products is extremely large; including rice as well as corn and wheat, and oranges, lemons and bananas, as well as apples, pears and peaches. Georgia watermelons are a well-known and popular product. During the last four or five years, the growth of the fruit business has been very rapid. The climate is mild and even, with a long season of warm weather. Manufacturing has become a very important interest. Such materials as cotton, iron ore, lumber, tobacco and pine tree products furnish cheap and plentiful raw material, while coal is mined, and water power is abundant and cheap. Commerce is extending rapidly. Much has been expected from the operation of the anti-trust law enacted in 1897, the effects of which are being observed with interest in other states.

IDAHO, "The Gem of the Mountains."

Governor, F. Steunenberg,	\$3,000	Treasurer, Geo. H. Storer,	\$1,000
Lieut. Gov., Geo. F. Moore,	Per day 7.50	Att'y Gen., R. E. McFarland,	
Sec. of State, George J. Lewis,	1,800	Ch'f Justice, I. N. Sullivan,	3,000
St'e Engineer, F. J. Mills,	2,000	Sup't P'lic Inst'n, L. N. B. Anderson,	1,500
Auditor, J. H. Anderson,	1,800		

Set off from Oregon in 1863, as a territory, Idaho became the forty-fourth state in 1890. Owing to the presence of Mormon immigrants the constitution contains a special provision against polygamy. The surface of the state is diversified with high mountains in the north and extensive plains in the southern portion. Like the extreme northwest in general, the climate is dry and stimulating. Mining has always been the chief industry, the mineral lands being rich in gold, silver, lead and

And for a country 'tis a bliss to die.—Homer.

copper. The Cœur d'Alene mountains are famous ore-producers. Several important new mines were opened last year, and many of the old placer mines have been re-opened. The agricultural interests are becoming more and more important, largely because of the extension of irrigation. The soil of the valleys is a rich, decomposed, volcanic ash. Colonies from eastern states have located under favorable conditions for home making in irrigated Idaho valleys. Stock raising and general farming are practiced. Fruit growing is becoming an important feature. The mining towns afford good markets. Grain crops, potatoes, hay, flax, alfalfa and sorghum are important, while fruit growing is increasing in extent very rapidly. Stock can be wintered in the open air and will fatten on the bunch grass of the plains. The large Nez Perces Indian reservation has been thrown open to settlement. The name of the state is of Indian origin and means, "the sight on the mountains," applying fitly to the beautiful sunrise effects among the mountain peaks. Wild animals like the grizzly bear, panther and deer are still found among the forests and mountains. The government of Idaho is in general like that of the older states. State taxes can never exceed one cent on the dollar; when the valuation reaches \$100,000,000 the tax must be reduced to three mills. An eight-hour law prevails, and the employment of children in mines is forbidden.

ILLINOIS, "The Prairie State."

Governor, John R. Tanner,	\$6,000	Treasurer, Henry L. Hurtz,	\$3,500
Lieut. Gov., Wm. A. Northcott,	1,000	Att'y Gen., Edward C. Aiken,	
Sec. of State, James A. Rose,	3,500	Ch'f Justice, B. D. Magruder,	4,000
Auditor, J. S. McCullough,	3,500	Sup't Public Inst'n, S. M. Ingliss,	3,500

Since 1818, when Illinois joined the sisterhood of states, its growth and development has been increasingly rapid until it has become the third state in point of population, with commercial, manufacturing and farming interests of vast extent. The surface is extremely level; a succession of prairies intersected by numerous streams. The climate is one of extremes, owing to the absence of mountain ranges, but is healthful and bracing, with cool breezes even in the hottest weather. Illinois is well supplied with facilities for inland commerce, having the largest railway mileage of any state and with a location commanding the traffic between the Mississippi country and the Great Lakes. The large ship canal under way will greatly advance transportation between river and lakes. A smaller canal already exists. The mineral resources include coal, lead and building stone. The copper and iron of the Lake Superior districts and the oil and gas of the gas districts to the south are available for uses of manufacture. Chicago already ranks next to New York in population. The first coal mine in the country was, it is asserted, opened at Ottawa, Ill., in 1670. Situated within the great corn belt, Illinois has long held high rank among the states as a producer of the yellow cereal. The production of wheat is very great. Since the great decline in the prices of the staple grains, many Illinois farmers have gone more extensively into general farming and dairying. More than half the nation's oleomargarine product in 1896, however, was made in this state. Grass seed, flaxseed, bee products, eggs and poultry, fruit and dairy products, pork, beef and mutton; this list indicates the general scope of Illinois agriculture.

Patriotism is the last refuge of a scoundrel.—Johnson.

Debts and Valuations of the States.

The total debt includes municipal and national, as well as direct state debts. During the ten years ending 1890 the total debt of all the states has decreased 36.19 per cent; the average rate of interest has fallen from 5.24 per cent to 4.85 per cent, and the amount of interest paid for each person from \$2.95 to \$1.51.

Geographical Divisions.	Total combined debt less sinking fund. In thousands of dollars.	Per capita of combined debt.		Average rate of interest. Per cent.		Interest charge per capita.		Total assessed valuation. Census of 1890. Thousands of dollars. 000's omitted.		Assessed valuation per capita.	
		1890	1880	1890	1880	1890	1880	1880	1890	1880	1890
Maine....	\$15,600	\$23.60	\$35.81	4.99	5.94	\$1.18	\$2.04	\$235,978	\$309,129	\$363.64	\$467.61
N. H.....	8,148	21.64	31.10	5.34	5.81	1.10	1.45	205,586	263,059	592.48	698.64
Vermont.	3,785	11.39	13.54	4.92	5.71	0.44	0.55	86,806	162,098	261.24	487.63
Mass.....	81,550	36.42	51.55	4.85	5.41	2.78	3.34	1,584,756	2,154,134	888.77	962.12
R. I.....	13,042	37.75	46.91	4.95	5.31	2.04	2.70	252,536	321,764	913.23	931.28
Conn.....	23,703	31.76	35.33	4.68	5.92	1.37	1.95	327,177	358,913	525.42	480.95
N. Y.....	201,763	33.64	43.06	5.01	6.22	2.13	3.07	2,651,940	3,785,910	521.74	631.21
N. J.....	49,333	34.14	43.66	5.85	6.76	2.17	3.08	702,518	893,859	621.08	618.62
Penn.....	71,041	13.51	25.03	5.35	5.78	1.10	1.74	1,683,459	2,659,796	393.07	505.86
Del.....	2,919	17.32	16.17	4.74	5.18	0.78	0.81	59,951	66,210	408.92	392.96
Md.....	42,175	40.46	44.31	5.12	5.56	2.39	2.01	497,307	529,494	531.91	507.96
Dist. of C.	19,781	85.86	126.66	4.32	4.45	3.71	5.44	99,401	153,307	559.62	665.42
Va.....	50,837	30.70	30.09	5.24	6.12	1.53	1.71	318,331	415,249	210.46	250.76
W. Va....	2,532	3.32	2.65	5.59	6.21	0.18	0.15	146,991	186,964	237.67	245.11
N. C.....	11,117	6.87	12.83	5.43	5.61	0.37	0.29	156,100	235,300	111.52	145.43
S. C.....	13,295	11.55	14.25	5.25	5.52	0.58	0.74	133,560	168,262	134.15	146.17
Ga.....	20,272	11.03	12.74	5.31	6.45	0.52	0.82	251,963	415,828	163.38	226.32
Fla.....	2,176	5.56	9.89	6.48	6.58	0.38	0.63	30,938	91,761	114.80	234.43
Ohio.....	71,065	19.35	16.59	5.72	6.82	1.14	1.14	1,534,360	1,778,138	479.78	484.20
Ind.....	24,442	11.15	9.28	4.75	6.74	0.51	0.57	727,815	856,838	367.90	390.82
Ill.....	41,841	10.94	15.07	5.96	7.10	0.63	0.96	786,616	809,682	255.57	211.61
Mich.....	16,941	8.09	7.36	5.65	7.47	0.33	0.45	517,666	898,155	316.24	428.94
Wis.....	10,440	6.19	9.19	5.55	6.65	0.27	0.46	406,303	577,066	308.86	342.09
Minn.....	26,050	20.01	14.51	4.99	7.29	1.09	0.77	258,028	588,820	330.48	452.30
Iowa.....	11,275	5.90	5.01	5.57	7.14	0.30	0.35	398,671	519,246	245.39	271.59
Mo.....	51,557	19.24	27.79	5.20	6.63	0.93	1.68	561,939	887,975	259.15	331.44
N. Dak...	3,842	21.03	α { 7.4	6.76	9.4	1.23	0.6	20,321	88,203	α 150.3	482.73
S. Dak...	6,613	20.11		6.41	9.4	1.22	0.6	20,321	140,154	α 150.3	426.25
Neb.....	15,536	14.67	16.56	5.95	8.85	0.87	1.20	90,585	184,770	200.23	174.49
Kan.....	40,629	28.47	15.97	6.04	7.57	1.67	1.17	160,891	347,717	161.52	243.65
Ky.....	19,432	10.46	9.09	5.65	6.54	0.65	0.76	370,743	547,596	224.87	294.62
Tenn.....	29,543	16.71	26.42	4.37	5.98	0.63	1.10	228,154	382,760	147.93	216.55
Ala.....	18,930	12.51	14.26	4.37	3.78	0.45	0.43	122,867	258,979	97.32	171.17
Miss.....	6,011	4.66	4.38	5.99	5.04	0.15	0.08	110,628	166,772	97.76	129.32
La.....	33,335	29.80	45.60	6.15	6.37	1.55	2.62	160,162	234,320	170.40	209.48
Texas...	20,172	9.02	7.34	6.20	7.05	0.57	0.49	320,364	780,898	201.27	349.31
Ark.....	10,828	9.60	13.37	6.02	6.43	0.19	0.40	86,409	174,737	107.67	154.88
Montana.	2,918	22.09	19.54	6.51	9.12	1.09	0.93	18,609	112,937	475.24	854.56
Wyo.....	1,647	27.14	9.88	6.29	10.00	1.19	0.23	13,621	32,536	655.24	535.98
Col.....	8,411	20.41	18.67	6.81	8.23	0.92	0.91	74,471	220,554	383.23	535.07
N. M.	2,831	18.44	0.71	6.59	8.33	1.11	0.03	14,675	43,227	122.74	281.44
Arizona..	2,937	49.28	9.33	7.37	10.00	2.87	0.47	9,270	28,050	229.23	470.48
Utah.....	767	3.69	0.81	5.03	.....	0.16	.....	24,775	106,110	172.09	510.38
Nev.....	1,337	29.23	22.48	7.33	9.76	1.37	1.29	29,291	25,350	470.42	553.97
Idaho....	1,594	18.89	7.05	7.31	7.17	0.96	0.16	6,440	25,748	197.51	305.13
Wash....	3,145	9.00	3.19	5.91	8.00	0.22	0.08	23,810	217,612	316.99	622.84
Oregon..	2,479	7.90	4.86	5.53	7.55	0.26	0.20	52,522	166,025	300.52	529.14
Cal.....	15,569	12.89	19.18	5.83	6.81	0.83	1.29	584,578	1,101,136	676.05	911.44
Total...	\$1,135,210	\$18.13	\$22.40	4.85	5.24	\$1.51	\$2.95	\$17,139,903	\$25,473,173	\$341.73	\$407.18

α Dakota Territory.

Valuation in 1896 in thousands of dollars.

Arizona....	28,047	California..	1,266,593	Minnesota..	583,372	New York..	*4,495,802
Alabama...	260,000	Ind. Ter....	25,000	Nevada....	23,106	Missouri...	*1,000,000
Colorado...	206,598	Kansas.....	321,157	N. H.	259,116		

..* Estimate for 1897.

One Federal Union: it must be forever.—Jackson.

The milk supplied to the great cities amounts to over 100,000,000 gallons. The state may be appropriately styled the garden of the middle west. The governor and state officers are chosen once in four years. The term of the senators is four years; one-half the number retiring every two years. Three members of the house of representatives are chosen from each senatorial district. In choosing representatives the method is that of cumulative voting, and is peculiar to this state; the voter has three votes and may give them for one, two, or three of the candidates for representative. During its state existence Illinois has had three constitutions. Each county and each township has local government.

INDIAN TERRITORY.

Governor, S. H. Mayes,	\$1,500	Ch'f Justice, C. L. Lynch,	\$500
Lieut. Gov., Wash Swimmir,	600	Treasurer, D. W. Lipe,	1,000
Sec. of State, C. J. Harris,	1,000	Att'y Gen., R. F. Wyly,	800
Auditor, J. C. Dannenberg,	300	Sup't Public Inst'n, Connell Rogers,	500

To remove the eastern Indian tribes to a section beyond the Mississippi, was a suggestion made by President Jefferson, but not authorized by congress until 1830. Each tribe was given a section of land, which was to be guaranteed to them and to their descendants. This territory, formerly extending to and including Kansas and Oklahoma, has now been greatly reduced in various ways. The government of the territory is that of nations within a nation, but the United States holds the right of eminent domain, limiting the powers of self-government of the Indians. Among the various tribes many peculiar laws and customs prevail. There is a fairly good system of common schools. Many of the Indians are wealthy and send their children to study at outside schools and colleges. Each of the five tribes is governed by a principal chief, a second chief elected for from two to four years, a legislature with two branches and a judiciary system. The Cherokees came from the state of Georgia. They are fairly well civilized, speaking English, and living by farming and other pursuits. There are many half-breeds and people of mixed blood. The Chickasaws are less numerous but possess a great deal of property and are considered shrewd and thrifty. The Creeks are good farmers and grow large crops of corn, wheat and cotton. The young men and women of the tribe are educated in the states. The Choctaws derive much income from coal mines which pay them a royalty. A majority of the nation is really of the white race, many of whom have become adopted citizens. The Seminoles are considered the most peaceful and orderly of the nations. They are mostly full-blooded Indians and are prosperous, with good schools.

IOWA, "The Hawkeye State."

†Governor, F. M. Drake,	\$3,000	Treasurer, John Herriott,	\$2,200
Lieut. Gov., Matt Parrott,	a—	Att'y Gen., Milton Remley,	*1,500
Sec. of State, G. L. Dobson,	2,200	Ch'f Justice, Scott M. Ladd,	4,000
Auditor, C. G. McCarthy,	2,200		

*And \$5 per day when in court. †Allowance for session of legislature. †For officers elected in 1897, see subsequent pages.

In early times the section now called Iowa was a part of the French possessions in America and occupied chiefly by roving tribes of Sioux, Sac and Fox Indians. Iowa became a district territory in 1838 and a state in 1846, since which time growth has been steady and rapid.

The greatest of all evils is a weak government.

There are 99 counties, with county officers chosen by the people every two years. The state elections are also biennial. Candidates for governor or for lieutenant-governor must be thirty years old and two years a citizen of the United States. The governor is military commander-in-chief and possesses the power of pardon. The lieutenant-governor is president of the senate. The four members of the supreme court are chosen for six years. Located wholly within the prairie section, Iowa has an undulating surface and rich soil, well adapted to agriculture. Iowa is one of the best farming states in the Union. The prairie soil is dark, rich and often two feet deep, while the bluff soil along the Missouri is sometimes 200 feet deep. Less than one per cent of the area is waste land. There are no swamps, deserts or mountains. The prairies where undisturbed are natural gardens of roses, violets and other wild flowers. The surface is diversified with occasional groves and thickets. Many orchards and tree plantations have been set during recent years. Corn, wheat and live stock are grown extensively. Great quantities of hay are sold from the blue grass region. Dairy, stock and horse farms abound. Fruits and vegetables flourish in many sections. Corn is king, as typified by the great corn palace built yearly at Sioux City and the production of that grain surpasses any other state. There is also a blue grass palace at Creston, typifying the importance of the hay industry. Iowa also leads in producing swine, and stands near the head in several other lines of agriculture. The trotting stock of the northeastern section is well known, likewise the thoroughbred draft animals. Sheep raising has fallen off somewhat but in 1897 the industry showed signs of renewed life. Sioux City is the center of great meat-packing interests, where the animal products of the neighboring sections are made ready for use. About \$3,000,000 are invested in this business here. The dairy and poultry products of Iowa are sent all over the northwest.

INDIANA, "The Hoosier State."

Governor, James A. Mount,	\$5,000	Att'y Gen., Wm. A. Ketcham,	\$7,500
Secretary, Chas. E. Wilson,	1,800	Deputy Att'y Gen., Merrill Moores,	1,800
Lieut. Gov., Wm. S. Haggard,	1,000	Clerk Supreme C't, Alexander Hess,	5,000
Sec. of State, Wm. D. Owen,	6,500	Reporter Supreme C't, C. F. Remy,	4,000
Dep. Sec of State, Robert A. Brown,	1,800	Sup't Public Inst'n, D. M. Geeting,	2,400
Auditor, Americus C. Daily,	7,500	Geologist, Wm. S. Blatchley,	2,400
Deputy Auditor Wm. H. Hart,	2,500	Statistician, J. B. Conner,	2,000
Treasurer, F. J. Scholz,	6,500	Adj't Gen., J. K. Gore,	1,500
Deputy Treasurer, J. A. Sontag, Jr.,	2,000		

Originally a part of the French possessions, the territory now constituting Indiana was ceded to England, and, after the Revolution, was acknowledged to be a part of the United States. It was admitted as a state in 1816, being the sixth state entering after the original thirteen. The surface is level or gently undulating, with a general slope toward the southwest. The principal river is the Wabash. The climate is fairly even and healthful. There are 7000 acres of coal land, and extensive areas of natural gas, the use of which when conducted by pipes to about eighty cities and towns has greatly stimulated the manufacturing interests of the state. The central location places Indiana in the way of the great lines of travel and the railroad system is therefore very complete. There are 92 counties, the governor is chosen for four years, and the legislature meets once in two years. Fifty members comprise

No government is safe unless it be fortified by good will.

the senate and there are one hundred members of the house of representatives. Elections by the legislatures are held by acclamation. Although the smallest of the eastern states, Indiana contains vast resources. The wet lands, formerly a source of malaria, have been largely improved and drained, forming the richest of farming land. Both upland and low land is very fertile. More than a third of the state is still covered with forest and the lumber product is large. Despite the growth of manufacturing and other industries the great majority of the people are engaged in farming. There is very little waste land, and the average product per acre is greater than that of England or France. Grain, potatoes, tobacco and hay are leading crops. Apples are grown extensively in the northeast, while peaches thrive in the southern portions. The middle and northern counties produce abundance of cattle, sheep and hogs. Dairy, poultry and bee products are important. Indiana's location, resources and people are of a kind which indicates for the commonwealth a future well-being to a high degree.

KANSAS, "The Sunflower State."

Governor, J. W. Leedy,	\$3,000	Treasurer, D. H. Haffebower,	\$2,500
Lieut. Gov., A. M. Harvey,	—	Adj't Gen., Hiram Alley,	1,400
Sec. of State, W. E. Bush,	2,500	Sup't Public Inst'n, Wm. Stryker,	2,500
Auditor, W. H. Morris,	2,500	Insurance Com'r, Webb McNall,	1,800
Ch'f Justice, Frank Doster,	3,000	Com'r of Agri., F. D. Coburn,	1,800

Part of the state was originally French territory and part came from Spain with Texas. When the state was admitted to the Union in 1820, a fierce dispute began as to whether slavery should be permitted. A condition of civil war prevailed for years, until in 1859 the people voted two to one for a constitutional article forbidding slavery. During the civil war Kansas furnished soldiers equal to one-sixth of her population. After the war development was rapid and the population increased twenty-fold within thirty years. The government is biennial, with 40 senators and 125 representatives. The climate is one of extremes but healthful. Located in the geographical center of the United States, Kansas is second in extent of arable soil. Its surface is a rolling plain sloping toward the southeast, interspersed with streams and woodland. The soil is dark, fertile and free from stones. Almost every acre in the state can be plowed but some of the area is valuable chiefly for minerals and for grazing. Coal, zinc, gypsum and other minerals are found. Kansas is a leading agricultural state. It is located in the corn belt and by the state census of '95 produced over 200,000,000 bushels in that year. Other grains are extensively grown. Sorghum is very successful in the southern part. The sugar-beet industry has made important beginnings. Live stock raising is extensive and fast increasing, favored by good pasturage and short winters. Secretary Coburn of the state board of agriculture is doing much to extend the popular knowledge of dairying which industry has made good progress in the last few years. Alfalfa is likely to become an important item. The apple trees of the state number over seven and one-half millions, and the peach trees nearly half as many. Thousands of timber trees are planted yearly. Kansas offers great advantages to the home seeker, with large areas of rich land waiting for development and with agricultural possibilities second to no other state.

An injury to one the concern of all.

Highest Point in Each State.

Computed by the United States Geological Survey.

State or Territory.	Name of Place.	H'g't	State or Territory.	Name of Place.	H'g't
Alabama...	Cheauha Mt. (Talladego Co.)	2,407	Montana ..	Mt. Douglas	11,300
Alaska	Mt. Logan	19,500	Nebraska ..	White River Summit.....	4,876
Arizona ...	San Francisco Mt.....	12,794	Nevada....	Wheeler Peak.....	13,036
Arkansas ..	Magazine Mt.....	2,800	N. H.	Mt. Washington.....	6,286
California..	Mt. Whitney	14,898	N. J.	Kittatinny Mountain.....	1,630
Colorado ..	Blanca Peak.....	14,464	N. M.	Cerro Blanco.....	14,269
Conne'ct ..	Bear Mt.....	2,355	New York..	Mt. Marcy (Adirondack)...	5,379
Delaware ..	Dupont	282	N. C.	Mt. Mitchell.....	6,703
D. of Col...	Tenley	400	N. Dakota..	Sentinel Butte	2,707
Florida ...	Highland	210	Ohio	Ontario.....	1,376
Georgia ...	Enota Mt.....	4,798	Oklahoma..	Goodwin.....	2,536
Idaho	Meade Peak.....	10,541	Oregon ...	Mt. Hood	11,225
Illinois ...	Warren.....	1,009	Penn.....	Negro Mt.....	2,826
Indiana ...	Haley	1,140	R. Island..	Durfee Hill.....	805
Ind. Ter'y..	Wichita Mts.....	2,500	S. C.	Rocky Mt. (Pickens Co.)...	3,600
Iowa.....	Ocheyedan	1,554	S. Dakota ..	Harney Peak.....	7,368
Kansas	Kanarado.....	3,906	Tennessee..	Mt. Leconte	6,612
Kentucky ..	Big Black Mt. (Harlan Co.)	4,100	Texas.....	North Franklin Mt	7,069
Louisiana ..	Mansfield.....	321	Utah.....	Mt. Emmons.....	13,694
Maine.....	Katahdin Mt.....	5,200	Vermont...	Mt. Mansfield	4,430
Maryland ..	Great Backbone Mt.....	3,400	Virginia...	Mt. Rogers (Grayson Co.)..	5,719
Mass.....	Mt. Greylock	3,535	Washin't'n	Mt. Ranier.....	14,444
Michigan ..	Porcupine Mt	2,023	West Va...	Spruce Mt. (Pendleton Co.)	4,860
Minnesota ..	Woodstock	1,826	Wisconsin..	Summit Lake	1,732
Miss	Pontotoc Ridge	566	Wyoming ..	Great Teton	14,150
Missouri...	Cedar Gap.....	1,675			

American Titles.

Archbishop,	Most Rev.
Bishop,	Rt. Rev.
Doctor of Divinity,	D. D.
A minister, rector, priest or rabbi,	Rev.
Doctor of Laws,	LL. D.
Physician or surgeon,	M. D. or Dr.
Dentist,	Dr., D. D. S., or D. M. D.
General,	Gen.
Lieutenant-General,	Lieut-Gen.
Colonel,	Col.
Admiral,	Adm.
Commodore,	Com.
Captain,	Capt.
Professors in colleges or seminaries,	} Prof.
Eminent teachers of science or the classics,	
Distinguished scholars or scientists,	
Officers of United States Civil Service,	} Esq.
Members of legal profession,	
Aldermen, magistrates, etc.,	
Men of all conditions and classes,	Mr.
The President of the United States, governors of states and ministers to foreign countries are alluded to as "His Excellency."	
The Vice President of the United States, members of the cabinet and members of Congress, heads of departments, assistant secretaries, comptrollers and auditors of the treasury, clerks of the senate and house of representatives, state senators, law judges, mayors of cities, etc., are addressed, "Honorable or Hon."	

The wealth of the United States has increased ninefold within the past thirty years.

In the United States the average of energy is 1940 foot tons daily per inhabitant, or more than double the energy of the average inhabitant of Europe. Hence the seventy-five millions of Americans are capable of doing more work than 150 millions of Europeans.

How sleep the brave, who sink to rest, by all their country's wishes blest

KENTUCKY, "The Blue Grass State."

Governor, Wm. O. Bradley,	\$6,500	Insurance Com'r, D. N. Comerger,	\$3,000
Lieut. Gov., Wm. J. Worthington,	\$10 day	Com'r of Agri., Lucas Morn,	2,500
Sec. of State, Charles Finly,	3,000	Land Com'r, Chas Reynolds,	2,000
Auditor, S. J. Stone,	3,600	Att'y Gen., W. S. Taylor,	4,000
Ch'f Justice, J. H. Lewis,	5,000	State Librarian, Emma Grey,	1,200
Treasurer, Geo. W. Long,	4,200	Ass't Sec. of State, E. D. Gupper,	1,800
Adj't Gen., D. R. Collins,	2,000	Private Sec. of Gov., F. H. Roberts,	1,200
Sup't Public Inst'n, W. J. Danrion,	2,500		

With the early history of Kentucky is closely linked the name of Daniel Boone, the pioneer and Indian fighter. The early settlers were Virginians. In 1792, Kentucky became a state. The Kentuckians are a warlike people, supplying 13,700 soldiers for the Mexican war. In the civil war the state itself remained neutral for a time, but about 92,000 of her citizens fought in the federal army, and 40,000 under the confederate flag. Since the war, commercial development has made rapid progress. The government is much like that of Virginia; there are four judges of the court of appeals and a series of circuit and county courts. Kentucky is larger than New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut together. A large part of the area comprises plateaus sloping toward the large rivers. The blue grass region in the north is a famous park-like section underlaid with limestone. The Mammoth cave, midway between Louisville and Nashville, is one of the natural wonders of the world; it contains over 200 miles of avenues and passages. Kentucky has numerous rivers abounding in fish; the mineral springs are famous health resorts. The climate is mild and healthful, favoring the best physical development of men and animals. Farm products are of great variety. Hemp, flax and tobacco are especially important; the state leads in production of hemp. Corn, wheat, oats and cotton are extensively grown. Live stock of all kinds is produced to perfection, and the trotting stock of Kentucky is famous the world over. Lexington is a great horse market. Some counties are almost wholly devoted to stock.

LOUISIANA, "The Pelican State."

Governor, M. J. Foster,	\$4,000	Att'y General, M. J. Cunningham,	\$3,000
Lieut. Gov., R. H. Snyder,	—	Com'r Agri., I. G. Lee,	2,500
Sec. of State, John T. Michael,	1,800	Ch'f Justice, F. T. Nichols,	5,000
Auditor, W. W. Heard,	2,500	Sup't Public Inst'n, J. V. Calhoun,	2,000
Treasurer, Alex V. Fournet,	2,000		

The first settlement was made at Biloxi in 1699. The section was included in the Louisiana purchase made of Napoleon in 1803, for the sum of \$16,000,000. Louisiana became a state in 1812. Situated along the lower Mississippi and its tributaries, the state contains large areas of low, fertile valley land. Extensive marshes are found along the coast, with millions of acres of prairie land in the southwest. Half the state's surface is covered with forest. Much of the land is as fertile as exists anywhere in the world. Less than one-twentieth of the soil is in cultivation. Excellent land can be bought at from \$5 to \$10 per acre. The largest farm in the United States, containing 1,500,000 acres, is in the southwestern part of the state. Cotton, rice and sugar cane are the leading crops. Vegetables and fruit can be raised the year round. It is claimed that beef, mutton and pork can be produced for one cent

I am not a Virginian, but an American.—Patrick Henry.

a pound. Diversified farming becomes more popular year by year. Sugar raising still supports half the population of the state. During the last two or three years several colonies of northern people have settled in Louisiana, and immigration is being encouraged in various ways.

MAINE, "The Pine Tree State."

Governor, Llewellyn Powers,	\$2,000	Ch'f Justice, J. A. Peters,	\$3,500
Sec. of State, Byron Boyd,	1,500	Sup't Public Inst'n, W. W. Stetson,	1,500
Treasurer, F. M. Simpson,	2,000	Insurance Com'r, Stephen W. Carr,	1,500
Att'y Gen., F. A. Powers,	2,000		

The early history of Maine abounds in stirring incidents of Indian warfare. About twenty years after the first settlement, Maine was consolidated with Massachusetts, and the history of the two states becomes largely identical until 1820, when Maine became a separate state. During the civil war, Maine sent out 80,000 troops. A well-known feature of Maine law, as well as of several other states, is that of the prohibition of the sale of liquor. Although not always fully enforced, it is claimed that the evil of drunkenness has been abated. Maine is nearly as large as all the other New England states combined, and nearly as large as Scotland and Denmark together. The surface is diversified. Lakes and streams are numerous. It is claimed that Maine has more water power than any section of equal area. The long, broken coastline affords many fine harbors, and commerce is destined to reach even a higher development than at present. Shipbuilding and fisheries are important. Manufactures are extending, especially those of paper and shoes. Granite and ice are important exports. Agriculture is increasing; the value of live stock exceeds that of any New England state. Rainfall is large and well distributed. Over two millions of acres of forest supply an important lumber industry. The Aroostook valley has the largest area of rich farm land in New England and is a great potato growing section. The general farming of the state is characterized by a high average of intelligence and skill. There is still much undeveloped land, with good openings for dairying, stock growing, sheep husbandry and orcharding.

MARYLAND, "The Old Line State."

Governor, Lloyd Lowndes,	\$4,500	Treasurer, T. J. Shyroek,	\$2,500
Sec. of State, Richard Dallam,	2,000	Ch'f Justice, James McSherry,	4,500
Controller, R. P. Graham,	2,500	Insurance Com'r, J. Albert Kurtz,	2,500
Att'y Gen., H. M. Clabaugh,	2,000		

The state received its name from Queen Henrietta Maria. Most of the early settlers were from England, Protestants and Catholics about evenly divided. As one of the original thirteen, Maryland took a prominent part in the Revolution. The state suffered severely in the war of 1812. During the civil war Maryland refused to join the seceded states. The chief state officers are elected once in four years, twenty-six members comprise the senate and 91 the house of representatives. The state constitution was adopted in 1867. Education is supported by state, county and local taxes. The state agricultural college has a fine farm eight miles from Washington. The agricultural college is the second founded in America. Maryland's climate is mild and pleasant, without excessive heat, and out-of-door work can be comfortably done for

Give me liberty, or give me death.—Patrick Henry.

nine months in the year. There are no blizzards or tornadoes, and drouths are rare. Coal of excellent quality for making steam is mined, and thousands of men are thus employed. Another more or less underground source of wealth are the great oyster beds, from which during the past fifty years more than 400,000,000 bushels of oysters have been taken. Oyster farming is a promising industry of the future. Baltimore, the chief city of the state, is the seat of commerce and manufactures of vast extent; it is the main center of the canning industry, in which it employs twenty thousand people, with a yearly output of sixty millions cans of fruit, vegetables and oysters. Agriculture in Maryland is developing new features. Large estates are being divided into small farms. The negroes are flocking to the cities and white men are doing a large proportion of the farming. Diversified agriculture is becoming more popular. Maryland, though less boomed than some of the newer states, offers excellent advantages to settlers. All the products of the temperate zone and some of the semi-tropical fruits can be grown. Land is cheap and good, civilized comforts and advantages can be obtained, and there are few drawbacks to the state as a place in which to locate a prosperous home.

MASSACHUSETTS, "The Bay State."

*Governor, Roger Wolcott,	\$8,000	Auditor, J. W. Kimball,	\$3,500
Lieut. Gov., W. Murray Crane,	2,000	Treasurer, E. P. Shaw,	5,000
Sec. of State, Wm. M. Olin,	3,500	Ch'f Justice, W. A. Field,	8,000
Att'y Gen., H. W. Knowlton,			

*For officers elected in 1897, see subsequent pages.

No section of the country has a more glorious history than Massachusetts. The influence of the early settlers has been felt in some way, and to a certain extent, in every part of the nation. The first permanent settlement was made by the Pilgrims at Plymouth in 1620, where is located the national monument to the Pilgrims. Much of the early national history is linked with that of Maine. British rule ceased in Boston in 1776, and the state adopted a constitution four years later. In the civil war 159,165 men enlisted and \$50,000,000 was spent by the state and its towns. The feature of Massachusetts government most worthy of special note is that of local rule by townships, each town forming a little republic, with a vote for every male citizen, and town meeting elections at which taxes are levied, money expended, town affairs directed and representatives chosen. The surface of Massachusetts is hilly, and the coast line extended. Cape Cod is an arm-like, sandy peninsula. The climate is severe and changeable, with delightful seasons in early summer and late autumn. Manufactures are of great extent and variety and form the chief source of wealth; most prominent are cotton and woolen goods, shoes, and iron manufactures. Boston, the chief city, is the center of the wool trade and is the metropolis of New England. The state ranks first in cotton and leather goods and third in value of all manufactured products. More granite is quarried than in any other state. Half the fishing vessels in the country are owned in this state, which also ranks first in per capita wealth, in number of cities and per cent of city population. The Metropolitan waterworks in the valley of the Nashua include part of 27 towns and cities and cover the sites of the homes of 1700 people and will cost from \$30,000,000 to \$50,000,000. Agriculture is favored by excellent markets,

O Washington, thy glorious name!

Distances Between Foreign Cities and New York.

NEW YORK.	Miles.	Days.	NEW YORK.	Miles.	Days.
Adelaide, <i>via</i> San Francisco.....	12,845	34	Havana.....	1,413	3
Alexandria, <i>via</i> London.....	6,150	15	Hong Kong, <i>via</i> San Francisco....	10,590	25
Amsterdam, " ".....	3,985	10	Honolulu " " ".....	5,645	13
Antwerp " ".....	4,000	10	Liverpool.....	3,540	8
Athens " ".....	5,655	14	London, <i>via</i> Queenstown.....	3,740	8
Bahia, Brazil.....	5,870	21	London, <i>via</i> Southampton.....	3,760	8
Bangkok, Siam, <i>via</i> San Francisco,	12,990	43	Madrid, <i>via</i> London.....	4,925	11
Batavia, Java, <i>via</i> London.....	12,800	41	Melbourne, <i>via</i> San Francisco....	12,265	32
Berlin, <i>via</i> London.....	4,385	10	Mexico City (Railroad).....	3,750	7
Bombay ".....	9,765	27	Panama.....	2,355	7
Bremen ".....	4,235	10	Paris.....	4,020	8
Buenos Ayres.....	8,045	29	Rio de Janeiro.....	6,204	25
Calcutta, <i>via</i> London.....	11,120	30	Rome, <i>via</i> London.....	5,030	11
Cape Town, <i>via</i> London.....	11,245	30	Rotterdam, <i>via</i> London.....	3,935	10
Constantinople, <i>via</i> London.....	5,810	14	St. Petersburg, <i>via</i> London.....	5,370	12
Florence " ".....	4,800	11	Shanghai, <i>via</i> San Francisco.....	9,920	25
Glasgow.....	3,375	10	Stockholm, <i>via</i> London.....	4,975	12
Greytown, <i>via</i> New Orleans.....	2,810	7	Sydney, <i>via</i> San Francisco.....	11,570	31
Halifax, N. S.....	645	2	Valparaiso, <i>via</i> Panama.....	5,910	20
Hamburg, <i>via</i> London.....	4,340	10	Vienna, <i>via</i> London.....	4,740	73
Hamburg, Direct.....	4,820	12	Yokohama, <i>via</i> San Francisco....	7,348	12

State Census of 1895.

Eleven states took a census in 1895, and Michigan in 1894. The results of these are given below, in comparison with the national census of 1890.

STATES.	Population in 1895.			Total, 1890.	Gain since 1890.	Per cent av. annual gain since 1890.
	Males.	Females.	Total.			
Florida.....	Not given	Not given	464,639	391,422	73,217	3.74
Iowa.....	1,064,930	993,139	2,058,069	1,911,896	146,173	1.47
Kansas.....	693,928	640,806	1,334,734	1,423,585	—88,851*	—1.24*
Massachusetts.....	1,214,701	1,285,482	2,500,183	2,238,943	261,240	2.16
Michigan, 1894.....	1,160,540	1,081,101	2,241,641	2,093,889	147,752	1.76
Minnesota.....	841,755	727,281	1,574,619	1,301,826	272,793	4.19
New Jersey.....	835,115	837,991	1,673,106	1,444,933	228,173	3.16
Oregon.....	205,383	157,130	362,515	313,767	48,746	3.11
Rhode Island.....	187,590	197,168	384,758	345,506	39,252	2.27
South Dakota.....	179,384	151,591	330,975	328,808	2,167	.13
Utah.....	126,803	120,521	247,324	207,905	39,419	5.48
Wisconsin.....	1,003,141	934,774	1,937,915	1,686,880	251,035	2.98

* Decrease.

Foreign Envoys in the United States.

For information about the following countries, address the "Envoy and Minister Plenipotentiary" of respective governments. The following nations have envoys at Washington, D. C.: Argentine Republic, Austria, Belgium, Brazil, Chile, China, Columbia, Costa Rica, Denmark, France, Germany, Great Britain, Central America, Guatemala, Hawaii, Italy, Japan, Korea, Mexico, Netherlands, Portugal, Russia, Spain, Sweden and Norway, Switzerland, Turkey, Venezuela. These countries have their representatives in New York city: Dominican Republic, Hayti. For general information about Central and South American countries, application should be made to the Bureau of American Republics at Washington.

The longest bridge in the world is that over the firth of Tay, extending nearly two miles, or 10,320 feet.

'Tis easy to see, but hard to foresee.

the eastern half of the state being a region of cities. A high grade of farming prevails; the farmers are unusually skilled and intelligent. Grain and stock farming has been largely replaced by dairying, milk farming, fruit and truck farming. Cranberry culture is an important industry in the Cape Cod district and tobacco growing in the Connecticut valley. Agriculture has been carefully fostered by the state and the agricultural college at Amherst has been called the best in America.

MICHIGAN, "The Wolverine State."

Governor, Hazen P. Pingree,	\$4,000	Treasurer, Geo. A. Steel,	\$800
Lieut. Gov., Thos. B. Dunston,	Per day 3	Att'y Gen., F. A. Maynard,	1,000
Sec. of State, Washington Gardner,	800	Sup't Public Inst'n, J. E. Hammond,	1,000
Auditor General, Roscoe D. Dix,	3,000	Land Com'r, Wm. A. French,	—

Long a part of the British Northwest, Michigan did not become indisputably a portion of the United States until long after the Revolution. It was admitted as a state in 1837. State elections are biennial, the legislature meets in alternate years, from January to July. There are five supreme court judges, serving for ten years, and 29 circuit courts whose judges serve for six years. The climate, modified by the lakes, is mild for the latitude. Owing to the lake coast, the outline is very irregular. Lake Michigan is the largest lake wholly within the United States. Michigan has more shipping than any western state. Coal underlies 6700 square miles. In the output of iron and lumber, Michigan leads. The upper belt is 135 miles long. Salt is an important product. Lumbering has always been a leading industry. The manufactures are very extensive and center about the working up of the raw materials above noted. The lake fisheries are productive. Agriculture is extensive and varied. Corn, oats, potatoes and wheat are leading staples. Dairying is making rapid progress. The southern and coast sections, with mild climate and light loamy or sandy soil, prove very favorable to peach growing and fruit farming. The soil of the river bottoms is very rich. Kalamazoo is a center of celery culture. Detroit is the metropolis of the region and one of the great cities of the country. Michigan, because of the variety and extent of its resources, is destined to become a commonwealth of advanced and uniform prosperity.

MINNESOTA, "The North Star State."

Governor, D. M. Clough,	\$5,000	Treasurer, A. T. Koerner,	\$3,500
Lieut. Gov., John L. Gibbs,	Per day 10	Adj't Gen., Herman Muehlberg,	2,000
Sec. of State, Albert Berg,	3,500	Sup't Public Inst'n, W. W. Pendergast,	2,500
Auditor, R. C. Dunn,	3,600	Insurance Com'r, E. E. Dearth,	2,500
Ch'f Justice, Chas. M. Start,	5,000	Land Com'r, State Auditor ex officio	—
Att'y Gen., H. W. Childs,	3,500	Sup't B'ks a'd P'b. Ex., M. D. Kenyon,	3,500

Although of comparatively recent development, Minnesota has become one of the most powerful and prosperous of the states. The first permanent settlement was made as late as 1819. In 1857 the territory became a state. During the early history, wars with the Indians were frequent. Two-thirds of the area of the state is occupied by the valley of the upper Mississippi, and abounds in prairies, forests and mineral lands. There are over 1500 miles of navigable rivers, while the watersheds of the St. Lawrence system, the Mississippi and the Red River of the North, have their location in this state. The climate is

Hearts of oak, our men!

dry, with warm summers and clear cold winters. It is especially beneficial to sufferers from malarial diseases and consumption. Half of the state is covered with forests and lumber is produced in large quantities. Minnesota is a great producer of iron, most of which has been worked up in furnaces and mills outside the state until recent years, when there has been an extraordinary growth of home manufactures. All except the extreme northern part of the state is well suited for agriculture, which is the leading industry, but only one-eighth of the state has yet been brought under cultivation. The wheat crop rarely fails and its quality is the very best. Minneapolis is the center of the flour industry. Minnesota is a great stock raising state, while the dairying districts are extremely prosperous and productive. Corn, oats and flax are grown. The cultivation of small fruits is increasing, and the sugar beet industry seems likely to gain a strong foothold. The social condition of Minnesota is much better than that of many of the newer states, on account of the high grade of immigration, which included a large proportion of New England and Teutonic stock. Education is well provided for. The country districts and the fast growing cities alike afford many opportunities for new comers in all lines of productive industry.

MISSISSIPPI, "The Bayou State."

Governor, A. J. McLaurin,	\$3,500	Ch'f Justice, T. E. Cooper,	\$3,500
Lieut. Gov., J. H. Jones,	Per day 6	Sup't Public Inst'n, A. A. Kincannon,	2,000
Sec. of State, J. L. Power,	2,000	Land Com'r, J. M. Simonton,	—
Auditor, W. D. Holder,	2,500	R. R. Com'rs, J. D. McInnis, M. M.	—
Treasurer, A. Q. May,	2,500	Evans, J. J. Evans,	—
Att'y Gen., W. N. Nash,	—		

Great River is the meaning of the name which was naturally taken from the mighty stream which flows the entire length of the state. The region was a part of the Louisiana purchase and includes sections formerly belonging to several of the neighboring states. During the civil war Mississippi was one of the first states to secede, and her territory was a scene of important conflicts. The property valuation was greatly reduced by the losses of war and the emancipation of slaves, but has since rapidly recovered. Mississippi is a rich farming country containing level or rolling uplands, wide prairies and extremely rich river bottoms. The famous Yazoo Delta is 160 miles long and contains some of the most fertile land in the world, and a greater area than Connecticut and Rhode Island combined. Floods cause much trouble here, and the river waters are confined by artificial banks or levees which are under the care of a board of commissioners. The three members of the supreme court, the nine circuit judges, and the twelve chancellors receive their appointment from the governor. No atheist is eligible to office. Education is free, with a good system of schools and higher institutes. Agriculture is the chief occupation, being followed by no less than nine-tenths of the people. The large plantations are rapidly being divided into small farms. Considerable government and railway land still remains. Cotton is a great specialty, and more than a million bales are produced yearly. Corn is the leading grain crop. Production of fruit and vegetables receives increasing attention, for shipment to northern cities. The state contains most of the leading dairy sections of the Gulf coast. Live stock, including sheep and swine, are numerous. Hay is successfully grown. Considerable attention is given to silk culture. The

How difficult to retain glory.—Syrus.

pine forests are exceedingly valuable. The climate is warm, but in most localities healthful. Land and labor are cheap.

MISSOURI, "The Bullion State."

Governor, Lon. V. Stephens,	\$5,000	Ch'f Justice, Shepard Barclay,	\$4,500
Lieut. Gov., A. H. Bolte,	*1,000	Sup't Pub. Schools, John R. Kirk,	3,000
Sec. of State, A. A. Lesueur,	3,000	Labor Com'r, Lee Meriwether,	2,000
Auditor, J. M. Seibert,	3,000	Att'y Gen., E. C. Crow,	3,000
Treasurer, Frank L. Pitts,	3,000		

*Seven dollars per day during session of legislature.

Named from the "Great Muddy," as the Indians termed the Missouri river, this state is also nicknamed the Bullion State and the Iron Mountain State, from the value and extent of its resources. Settlements were made by the French about 1750 and the state is one of the several powerful commonwealths which have been carved out of the Louisiana purchase. Admitted as a state in 1821, Missouri played a brave part in the Mexican war, and sent 60 per cent of her men eligible to military duty, to the civil war. Since the last war, the growth of Missouri has been very rapid. The surface comprises prairies, plateaus and forest lands, also fertile river bottoms and lowland. The courts include five supreme judges, two courts of appeal, 30 circuit courts and ten municipal courts. There is a school fund of \$11,000,000. St. Louis is one of the leading manufacturing cities in the country. Kansas City and St. Joseph are growing very fast. The Missouri and Mississippi afford highways of river commerce. There are large forests at the south. Mineral springs abound. The climate is variable, with long summers and short but occasionally severe winters. The mineral wealth is great. Iron mountain, composed of porphyry and iron ore, covers 500 acres. Lead is abundant. Missouri leads the state in zinc production. In St. Louis county is a great coal mining district. In value of farm products Missouri ranks among the first. Corn, oats, wheat, potatoes, hay and fruit are leading crops. Mules, cattle, horses, sheep and swine are numerous. Butter and eggs are important products of the northern section. The large forests supply great quantities of lumber. Game and fish abound.

MONTANA, "The Bonanza State."

Governor, R. B. Smith,	\$5,000	Treasurer, T. E. Collins,	\$3,000
Lieut. Gov., A. E. Spriggs,	10 day	Att'y Gen., C. B. Nolan,	3,000
Sec. of State, T. S. Hogan,	3,000	Ch'f Justice, W. Y. Pemberton,	4,000
Auditor, T. W. Poindexter, Jr.,	3,000	Sup't Pub. Inst'n, E. A. Carleton,	2,500

In early times, Montana was chiefly inhabited by hunters and traders. Not until the gold discoveries in 1863 did the state begin to attract much immigration. The gold diggings of one district yielded \$25,000,000 in a few months. Indian wars continued until 1877. Montana became a state in 1889. Western Montana is very mountainous, as indicated by the name of the state. The eastern two-thirds consists mostly of plains. The total area is greater than that of the British Islands. This great section abounds with the resources of an empire. Mining is still the foremost industry. In the production of copper Montana leads, is second in silver, third in gold and fourth in lead. Coal is abundant. Minerals in great variety are obtained. Helena is a great mining center.

Our country is the world—our countrymen are all mankind.—Garrison.

Interest Laws and Limitation, by States.

STATES AND TERRITORIES.	Interest Laws.		Statutes of Limitations.			STATES AND TERRITORIES.	Interest Laws.		Statutes of Limitations.		
	Legal rate, Per cent.	Rate Allowed by Contract, Per cent.	Judgments, Years.	Notes, Years.	Open Acc'ts, Years.		Legal rate, Per cent.	Rate Allowed by Contract, Per cent.	Judgments, Years.	Notes, Years.	Open Acc'ts, Years.
Alabama.....	8	8	20	6*	3	Nebraska.....	7	10	5	5	4
Arkansas.....	6	10	10	5	3	Nevada.....	7	Any rate	6	6	4
Arizona.....	7	Any rate	5	5	3	N. Hampshire.	6	6	20	6	6
California.....	7	Any rate	5	4†	2	New Jersey....	6	6	20	6	6
Colorado.....	8	Any rate	10††	6	6	New Mexico....	6	12	7	6	4
Connecticut...	6	Any rate	†	(e)	6	New York.....	6	6††	20	6	6
Delaware.....	6	6	(c)	6	3	North Carolina	6	6	10	3*	3
D. of Columbia	6	10	12	3	3	North Dakota..	7	12	10(f)	6	6
Florida.....	8	10§	20	5	2	Ohio.....	6	8	5††	15	6
Georgia.....	7	8	7††	6	4	Oklahoma.....	7	Any rate	1	5	3
Idaho.....	10	18	6	5	4	Oregon.....	8	10	10	6	6
Illinois.....	5	7	20	10	5	Pennsylvania..	6	6	5	6	6
Indiana.....	6	8	10**	10	6	Rhode Island..	6	Any rate	20	6	6
Iowa.....	6	8	20	10	5	South Carolina	7	8	10	6	6
Kansas.....	6	10	5	5	3	South Dakota..	7	12	10	6	6
Kentucky (a) ..	6	6	15	15	5 (a)	Tennessee.....	6	6	10	6	6
Louisiana.....	5	8	10	5	3	Texas.....	6	10	10	4	2
Maine.....	6	Any rate	20	6||	6	Utah.....	8	Any rate	8	4	2
Maryland.....	6	6	12	3†	3**	Vermont.....	6	6	8	6§§	6
Massachusetts	6	Any rate	20	6||	6	Virginia.....	6	6	10	5	2
Michigan.....	6	10§	6(g)	6	6	Washington...	7	12	6	6	3
Minnesota.....	7	10	10	6	6	West Virginia.	6	6	10	10	5
Mississippi.....	6	10	7	6	3	Wisconsin.....	6	10	20	6	6
Missouri.....	6	8	20	10	5	Wyoming.....	8	12	21	5	5
Montana.....	10	Any rate	10	8	5						

* Under seal, 10 years. † If made in state; if outside, 2 years. ‡ No law and no decision regarding judgments. § Not to exceed 10 per cent. || Under seal, 20 years. †† Under seal, 12 years. ** Real estate, 20 years. ††† New York has by a recent law legalized any rate of interest on call loans of \$5000 or upward, on collateral security. †††† Becomes dormant, but may be revived. §§ Under seal, 14 years. (a) Building and Loan Associations may charge 12 per cent interest and premium together. Actions on merchants' accounts must be commenced in two years. (c) Ten years in Newcastle county, twenty years in Kent and Sussex counties, Del. (e) Negotiable notes 6 years, non-negotiable 17 years. (f) Ten years in new law, 20 years in old law. (g) Not under seal.

Troops Engaged in War of United States.

WARS.	Years.	Total troops.
Revolution.....	1775-1783	309,781
Northwest Indians....	1790-1795	8,983
With France.....	1798-1800	*4,593
With Tripoli.....	1801-1805	*3,330
Creek Indians.....	1813-1814	13,781
War of 1812.....	1812-1815	556,622
Seminole Indians.....	1817-1818	7,911
Black Hawk Indians..	1831-1832	6,465
Cherokee troubles	1836-1837	9,494
Creek Indians.....	1836-1837	13,418
Florida Indians.....	1835-1843	41,122
Aroostook troubles ...	1838-1839	1,500
Mexican.....	1846-1848	112,230
Apache, Navajo and Utan.....	1849-1855	2,561
Seminole Indians.....	1856-1858	3,687
Civil War.....	1861-1865	2,778,334

* Naval forces.

Depths of the Ocean.

The greatest known depths of the different oceans that have been reliably sounded are the following, the data having been obtained from the Bureau of Navigation, Navy Department. (Six feet equals a fathom.)

LOCATION OF SOUNDINGS.	Latitude	Longitude.	Depth in fathoms.
	o /	o /	
N. Atlantic Ocean.	19 39 N	66 26 W	4,561
S. Atlantic Ocean..	19 55 S	24 50 W	3,284
North Sea.....	58 12 N	9 30 E	442
Baltic Sea.....	58 37 N	18 30 E	233
Mediterranean Sea	35 45 N	21 46 E	2,405
Black Sea.....	42 55 N	33 18 E	1,431

The virtue of prosperity is temperance.

On account of its extent of territory and diverse conditions, Montana has many varieties of climate, with great extremes. The winters are cold, but subject to the influence of the warm Chinook winds in the western portion. On account of lower general altitude, the climate is about as mild as that of the states just south. Wild animals are still numerous. Farming and stock raising have developed rapidly. In 1896, Montana led the states in number of sheep and pounds of wool. Cattle ranches are numerous, also horse farms. The bunch grass of the plains is very nutritious. Of late years general farming has received much attention and dairying is making good progress under favorable conditions. The state offers all the advantages of a new and but slightly developed country. Land can be had cheaply of railroad companies, and in all directions numerous avenues are open toward fortune.

NEBRASKA, "The Antelope State."

Governor, S. A. Holcomb,	\$2,500	Auditor, J. F. Cornell,	\$2,500
Lieut. Gov., J. E. Harris,	Per day 5	Treasurer, J. B. Meserve,	2,500
Sec. of State, Wm. F. Porter,	2,000	Land Com'r, J. V. Wolfe,	
Att'y Gen., C. J. Smyth,	2,000	Sup't Public Inst'n, Wm. R. Jackson,	2,000

The rolling prairie district now known as Nebraska was long under territorial government, held with difficulty against Indian hostilities and developed by a hardy race of settlers. The railroads came in 1863 and by 1867 the district was ready for statehood. The name means "shallow water," in allusion to the river Platte. The popular title, "Antelope state," indicates the nature of the former animal population of the plains. The schools are well endowed from the sale of public lands, and the proportion of illiteracy is very small. Nebraska has a healthy and invigorating climate, even the winter being dry and sunny. High winds sometimes prevail. Manufactures are rapidly developing. Lincoln is one of the most rapidly growing cities in the west. Omaha is a great live stock market. Situated in both the corn belt and the wheat district, Nebraska grows large areas of both these crops and also the other grains. Sorghum, millet and broomcorn are successful specialties. This state bids fair to become a center of the beet sugar industry. As a meat producing section Nebraska is prominent and the dairy products are important. Live stock of all kinds is raised. Tobacco is profitably grown. Orchards flourish. Valuable timber lands exist. Irrigated land is increasing. There are still millions of uncultivated acres held at low prices. No state is developing more rapidly than Nebraska.

NEVADA, "The Sage Brush State."

Governor, Reinhold Sadler,	\$4,000	Adj't Gen., G. A. Galusha,	\$600
Sec. of State, Eugene Howell,	3,000	Sup't Public Inst'n, H. C. Cutting,	2,400
Auditor, C. A. LaGrave,	2,400	Land Register, A. C. Pratt,	2,400
Chf Justice, C. H. Belknap,	4,500	Att'y Gen., J. R. Judge,	2,000
Treasurer, W. J. Westerfield,	2,400		

After its acquisition from Mexico, Nevada was for some time a part of Utah. A number of Mormon settlements were made in 1851. The state owed its later development to the discovery of rich silver mines, which about 1861 began to produce vast quantities of the white metal. Since 1875 the mines have proved less profitable, but the prosperity of the state has been partially restored by the development of irrigated land.

Steer not after every mariner's direction.

The recent law permitting prize fights has led to the holding of several noted pugilistic contests within the state. The surface of Nevada is mountainous, with wide, dry valleys covered with sage brush, from which fact the title, "Sage brush state," is derived. The soil of these plains is rich and very productive when watered from mountain streams. Vegetable growth is very rapid under the cloudless sun of summer. The thermometer seldom goes above 95 degrees in summer or below zero in winter on the plains. Lung troubles are often cured by the climate. The mineral wealth includes various metals besides silver and gold. Salt, soda, borax, sulphur, iron, coal, copper, etc., are found. Farming is being rapidly extended by the construction of irrigating canals. With water supplied, the products are almost as varied as those of California and the mining districts afford ready markets. The irrigated area under crops exceeds that of any other state.

NEW HAMPSHIRE, "The Granite State."

Governor, Geo. A. Ramsdell,	\$2,000	Adj't Gen, E. J. Eastman,	\$2,200
Sec. of State, Ezra D. Stearns,	Fees, 800	Sup't Public Inst'n, Fred Gowing,	2,500
Ch'f Justice, A. P. Carpenter,	3,500	Insurance Com'r, J. C. Linehan,	2,000
Treasurer, S. A. Carter,	1,800	Com'r of Agri., N. J. Bacheider,	1,500

Early settlements were made by traders and fishermen at Dover about 1623. The lives of the pioneers were made miserable by incessant Indian warfare. New Hampshire was one of the thirteen original states and its history contains many an eventful page. The later development of the state has increased the manufacturing centers somewhat at the expense of the rural districts. The name is derived from the English Hampshire. State elections are biennial. There are 24 senators and over 300 representatives, and seven justices of the supreme court. New Hampshire is the region of the White mountains and has often been called the Switzerland of America. Its magnificent scenery is well known. Lakes are numerous. The northern counties abound in forests, with considerable game and supplying the basis of a lumber industry. Water power is abundant and large manufacturing cities have sprung up. Cotton spinning, coach making and paper making are important branches. The climate is severe but healthful, and the cool summers attract numerous visitors. Along the rivers and large streams the soil is rich and easily worked. In the hill lands the soil is heavy, with clay subsoil, and often rocky. Grass is the leading crop. Dairying is very important and milk is shipped from some sections to Boston markets. Corn, wheat, oats, barley and potatoes are grown. New Hampshire apples have a reputation for superior quality. Small fruit thrives well. New Hampshire farmers are prosperous, as shown by their large deposits in savings banks. Farms can often be bought for very much less than the improvements made upon them originally cost.

NEW JERSEY, "The Garden State."

Governor, John W. Griggs,	\$10,000	Chancellor, Alex. T. McGill,	\$10,000
Sec. of State, H. C. Kelsey,	6,000	Ch'f Justice, Mercer Beasley,	10,000
Controller, Wm. S. Hancock,	6,000	Sup't Public Inst'n, A. B. Poland,	3,000
Treasurer, Geo. B. Swain,	6,000		

Henry Hudson explored the shores of New Jersey in the seventeenth century, but the country was not settled until 1627. The people fur-

Step after step, the ladder is ascended,

nished a large quota for the French and Indian wars, where the color of their uniforms gave the nickname, "Jersey Blues," and the state was the source of important conflicts during the revolution. During the civil war some of the best troops in the Federal army were from New Jersey. The state is a peninsula, surrounded by rivers and the salt water. The surface ranges from level at the south to mountainous at the north. Among the mineral resources are iron, zinc, building stone, pottery, clay, marl, etc. Manufactures flourish in Newark, Camden, Elizabeth, Patterson and other cities. The chief state officers are appointed by the governor. The court system includes the court of error and appeals, of chancery, of prerogative and of pardon. There are nine supreme court justices and the usual system of minor courts. Farming is fostered by the nearness of the principal cities of the country. Produce can be shipped in unlimited amounts and some sections of the state are in truth vast market gardens. Land is held at high prices and the product per acre is large. Live stock and dairy interests are important. Applejack, popularly known as "Jersey lightning," is made by the hundreds of thousands of gallons. Peaches and cranberries are fruit specialties. All kinds of garden truck are shipped to the great markets. The roads are good, educational facilities abundant and the general conditions conducive to happy and prosperous homes.

NEW MEXICO, "The Land of Sunshine."

Governor, Wm. T. Thornton,	\$2,600	Treasurer, S. Eldodt,	\$2,000
Sec. of State, Lorion Miller,	Fees and 1,800	Sup't Public inst'n, Amado Chavez,	2,000
Auditor, Marcellus Garcia,	2,000	Chief Justice, Thomas Smith,	3,000

Part of the territory which comprises New Mexico came with the Mexican session and part was ceded by Texas. The people of the new acquisition proved loyal to the Federal government in 1861 and raised a good sized army. The later development of the section is a result of the completion of through railway lines. New Mexico being still a territory, the governor and secretary are appointed by the president. There is a supreme court of six members and numerous minor territory officials. The area is larger than Great Britain and Ireland and three times as large as all New England. Mountains cover large sections, but there are many millions of acres suitable for agriculture when supplied with water. The climate is so clear and dry that the country is called the "Land of sunshine." Mineral resources include silver, gold, lead and coal. The river valleys contain some extremely rich land. Grain, vegetables and grapes are productive and of fine quality. The hot summers push New Mexican fruit to early maturity, giving the growers a fair chance at the northern markets. Many of the farmers are Mexicans. The Pueblo Indians are also industrious farmers. Enormous irrigation enterprises are rapidly developing the agricultural resources, and the section is destined to become a prominent fruit, vineyard and stock-growing region.

NEW YORK, "The Empire State."

Governor, Frank S. Black,	\$10,000	Treasurer, A. B. Colvin,	\$5,000
Lieut. Gov., T. L. Woodruff,	5,000	Adj't Gen., C. W. Tillinghast, 2d,	3,500
Sec. of State, John Palmer,	5,000	Sup't Public Inst'n, C. A. Skinner,	5,000

Don't give up the ship.

Facts About Farms.

Census 1890.

STATES AND TERRITORIES.	No. of farms.	Mil'ns acres in farms			Per cent unim- proved.	Average size in acres.	Valuation in millions of dols			
		Im- proved.	Unim- proved.	Total.			Land and improve- ments.	Machin' ry and tools.	Live stock.	Annual products.
Alabama.....	157,772	9.6	12.1	19.8	61.2	126	\$111.0	\$4.5	\$30.7	\$66.2
Arkansas.....	124,760	5.4	9.4	14.8	64.9	182	118.5	5.6	30.7	53.1
Arizona.....	1,426	.1	1.1	1.2	92.0	910	7.0	.2	3.2	1.0
California.....	52,894	12.2	9.2	21.4	43.0	405	69.7	14.6	60.2	87.0
Colorado.....	16,389	1.8	2.7	4.5	60.3	281	8.5	2.7	22.5	13.1
Connecticut...	26,350	1.3	.8	2.2	38.8	86	3.0	3.0	9.9	17.9
Delaware.....	9,481	.7	.2	1.0	27.8	113	39.3	1.8	4.2	6.4
D. of Columbia	382	.....	.....	.....	15.7	31	6.0	.8	.1	.3
Florida.....	31,220	1.1	2.5	3.6	68.8	107	72.7	1.1	7.1	12.0
Georgia.....	171,071	9.5	15.6	25.2	62.0	147	152.0	5.7	31.4	83.3
Idaho.....	240,681	25.6	4.8	30.4	53.4	197	17.4	1.1	7.2	3.8
Illinois.....	168,167	15.1	5.2	20.3	16.8	127	1,262.8	34.4	180.4	184.7
Indiana.....	200,903	25.4	5.0	36.4	25.8	103	754.7	21.1	93.3	94.7
Iowa.....	6,603	.6	.7	1.3	16.6	151	857.5	36.6	206.4	159.3
Kansas.....	166,617	22.3	7.9	30.2	26.2	181	559.7	18.8	128.0	95.0
Kentucky.....	179,264	11.8	9.6	21.4	44.8	119	346.3	10.9	70.9	95.9
Louisiana.....	69,294	3.8	5.7	9.5	60.5	138	85.3	7.1	17.8	54.3
Maine.....	62,013	3.	3.1	6.1	50.7	100	98.5	5.4	18.2	22.0
Maryland.....	40,798	3.4	1.5	4.9	31.1	121	175.0	6.5	19.1	26.4
Massachusetts.	34,374	1.6	1.3	2.9	44.7	87	127.5	5.9	14.2	28.0
Michigan.....	172,344	3.8	4.9	14.7	33.3	86	556.2	22.1	69.5	83.6
Minnesota.....	116,851	11.1	7.5	18.6	40.4	160	340.0	16.9	57.7	71.2
Mississippi.....	144,318	6.8	10.7	17.5	61.0	122	127.4	5.9	33.9	73.3
Missouri.....	238,443	19.7	10.9	30.8	35.7	129	625.8	21.8	138.7	109.7
Montana.....	5,663	.9	1.0	1.9	53.4	351	25.5	1.3	21.6	6.2
Nebraska.....	113,608	15.2	6.3	21.5	29.4	190	402.3	16.4	92.9	66.8
Nevada.....	1,277	.7	.9	1.6	56.5	1,301	13.3	.5	5.8	2.7
N. Hampshire..	29,151	1.7	1.7	3.4	50.1	119	66.1	3.5	10.4	13.7
New Jersey....	30,828	1.9	6.7	2.6	24.9	86	159.2	7.3	15.8	28.9
New York.....	226,223	16.3	5.5	21.9	25.4	97	968.1	46.6	124.5	161.5
North Carolina.	178,359	7.8	14.8	22.6	65.4	127	183.9	7.1	25.5	50.0
North Dakota..	27,611	4.6	3.0	9.6	39.2	277	75.3	6.6	18.7	21.2
New Mexico...	4,458	.2	.5	.7	66.6	177	8.1	.2	7.2	1.7
Ohio.....	251,430	18.3	5.0	23.3	21.5	93	1,050.0	29.4	116.1	133.2
Oregon.....	25,530	3.5	3.4	6.9	49.1	271	115.8	4.5	22.6	19.0
Oklahoma.....	8,826	.6	1.0	1.6	64.9	182	8.5	.4	3.2	.4
Pennsylvania..	211,557	13.2	5.1	18.3	28.1	87	922.2	39.0	101.6	121.3
Rhode Island..	5,500	.2	.2	.4	41.5	85	21.8	.9	2.3	4.2
South Carolina.	115,008	5.2	7.9	13.1	60.1	115	99.1	4.1	16.5	51.3
South Dakota..	50,158	6.9	4.4	11.3	38.9	227	107.4	8.3	29.2	22.0
Tennessee.....	174,412	9.3	10.8	20.1	53.6	116	242.7	9.9	60.2	55.1
Texas.....	228,126	20.7	30.6	51.4	59.6	225	399.9	13.7	103.3	111.0
Utah.....	10,517	.5	.7	1.3	58.6	135	28.4	1.1	6.8	4.8
Vermont.....	32,573	2.6	1.7	4.3	39.6	126	80.4	4.7	16.6	20.3
Virginia.....	127,600	9.1	9.9	1.9	52.2	150	254.4	6.5	33.4	42.2
West Virginia..	72,773	4.5	5.8	10.3	55.9	142	151.8	3.1	23.9	20.4
Washington....	18,056	1.8	2.3	4.1	56.4	231	83.4	3.1	14.1	13.6
Wisconsin.....	146,409	9.8	6.9	16.7	41.7	115	447.5	19.1	67.3	70.9
Wyoming.....	3,125	.5	1.3	1.8	73.9	586	14.4	.5	15.3	2.2
Total U. S. . .	4,564,641	357.	265.	623.	42.6	137	13,279.2	494.2	2,208.7	2,460.1

The population of the United States multiplied three fold between 1830 and 1890. About one-fifth of the increase was due to increase of foreign population. More than half the immigrants who arrived during the period mentioned either died or left the country. The negro population has lost ground except in New England, which section received considerable negro immigration after the civil war.

Industry need not wish.

NEW YORK, "The Empire State."—*Continued.*

Controller, J. A. Roberts,	\$6,000	Sup't Insurance, L. F. Payn,	\$7,000
*Ch'f Justice, C. A. Andrews,	10,200	Com'r of Agri., C. A. Wieting,	4,000
State Engineer, C. W. Adams,	5,000	Att'y Gen., Theodore E. Hancock,	5,000

*Term ends Dec. 31, 1897.

For the variety and extent of her resources and development, New York has throughout the history of the country well deserved the popular title of the Empire state. Its early history is that of the Dutch colonists, from whom descended many leading families of to-day. Some of the important events of the English-French war occurred along the borders of the state. During the revolution, New York bore a prominent part. By 1788, northern New York began to fill up with immigrants. The Erie canal greatly stimulated the growth of this section. During the civil war, 490,000 soldiers of New York went to the front, and her citizens to the number of 115 received the medal of honor. The area of New York is nearly equal to England but it is only the nineteenth state in point of area. Its location midway on the coast and between the sea and the great lakes, has helped to secure for the state its commercial supremacy. The climate is in general less severe than that of New England. Waterfalls are numerous, those at Niagara are one of the world's wonders, and if fully utilized would, it is claimed, drive all the machinery in the country. The power, already taken as far as Buffalo, may eventually be extended to much more distant cities. State officers are chosen for three years, but the people elect their own comptroller, treasurer, attorney-general, secretary of state, engineer and surveyor. The state spends \$500,000 yearly in maintenance of militia. The system of charity and of public institutions is large and elaborate. Educational provisions are extensive. The city of Greater New York is the metropolis of the nation and the second city in the world in population. It is remarkable for its wealth and commerce, its tall buildings and its manufactures. The state leads in manufactures, commerce, wealth and population. New York does not rank as a mining state, but its mineral products are varied. The brick industry amounts to \$9,000,000 per year. Building stone, salt, iron, graphite and petroleum are found. The state leads in production of bluestone. Agriculture is also important and New York stands among the first in the value of farms and farm products, although one-half its people live in cities. It is first in wealth, population and school population. The production and value of its hay crop surpasses all other states, and the same is true of the potato, buckwheat and fruit crops and dairy products. Hops and other special crops are grown. The development of New York is still proceeding upon all these lines, with no sign that the Empire state is in any present danger of losing its prestige.

NORTH CAROLINA, "The Old North State."

Governor, D. L. Russell,	\$3,000	Treasurer,	\$3,000
Lieut. Gov., Charles Reynolds,	6 day	Ch'f Justice, Wm. T. Faircloth,	2,500
Sec. of State, Appointed,	2,000	Sup't Public Inst'n	1,500
Auditor, J. R. Henderson,	1,500		

Sir Walter Raleigh attempted to colonize the North Carolina region about 1585, but his repeated attempts were failures. The first timothy grass was sent to England by Timothy, a Quaker member of one of these early colonies. During the revolution, the battle of Cowpens, fought

Self done is soon done,

within the state, was a turning point in the war. North Carolina furnished more troops to the Confederacy than did any other state. The surface of the state is diversified. In the lowlands the climate is warm and moist, while the mountain sections have the cold winters of the northern states. Great mineral resources exist, including gold, zinc and iron, but mining is but comparatively little developed. Manufactures are of growing importance. Agriculture has progressed rapidly of late years. Labor saving machinery has become more common. Better live stock is being introduced, dairying and diversified farming is increasing, while the experiment stations are disseminating better knowledge of modern agriculture. Corn, oats, sweet potatoes, cotton and rice are still the great staples, also hog, dairy products and medicinal herbs. The tobacco of northern North Carolina is of a bright yellow color and the valuation of the crop in 1895 was greater than that of any other state. Grapes are very successfully raised and they reach the northern markets very early in the season.

NORTH DAKOTA, "The Sioux State."

*Governor, F. A. Briggs,	\$3,000	Treasurer, Geo. E. Nichols,	\$2,000
Lieut. Gov., J. M. Devine,	1,000	Ch'f Justice, J. M. Bartholomew,	4,000
Sec. of State, Fred Falley,	2,000	Sup't Public Inst'n, J. G. Holland,	1,800
Att'y Gen., J. F. Cowan,	2,000	Insurance Com'r, F. Fanchen,	—
Auditor, J. U. Hannum,	2,000	Com'r of Agri., H. U. Thomas	—

*For officers elected in 1897, see later pages.

The great extent of the Louisiana purchase from France in 1803 may be inferred from the fact that not only modern Louisiana, but North Dakota also was a part of that great acquisition which cost the government only a few cents per acre. As with most of the north western country, the first settlements were made by the traders and Pembina was founded by French Canadians about 1780. Immigration did not become extensive until after 1875, when railways rendered the country more accessible. Admitted as a state in 1889. The warlike Sioux Indians occasioned the settlers a great deal of trouble. The people include many immigrants from Canada and numbers from countries of northern Europe. There are still many Indians living on reservations. The name of the state means "Allied," referring to the tribes of the Sioux nation. North Dakota stands first in per cent of gain of public school pupils since 1889. The supreme court, five justices, meets first Tuesdays, October and April, at Bismarck. The climate is dry and stimulating; cold in winter, but moderated greatly by the warm winds from the Pacific. Summer is marked by warm days and cool nights. Rain-fall is usually sufficient, but irrigation is common in some sections. Dakota is a country of plains, table lands and mountains at the north. The Red River valley is the garden of the state and contains many so-called "bonanza" wheat farms. This region is much larger than Massachusetts and includes 10,000 square miles of rich, loamy land. The western part of the state is underlaid with soft coal, and many of the farmers mine their own fuel. Spring wheat is the staple crop and "No 1 Dakota" is the synonym for quality. It can be produced here at lowest cost and sells at top market price. Diversified farming has gained rapidly of late, because of the average low price of wheat. Live stock is increasing. Dairying is profitably carried on and millions of trees, fruits and timber have been planted annually. Potatoes and other vegetables

He that seeks, finds.

succeed well. Most of the state is arable land. Total valuation of the state for 1897 is \$93,379,564, of which over two-thirds is for real estate. The people possess unusual energy and are rapidly developing the great resources in all directions.

OHIO, "The Buckeye State."

Governor, A. S. Bushnell,	\$8,000	Att'y Gen., F. S. Monett,	\$2,000
Lieut. Gov., A. W. Jones,	800	Ch'f Justice, J. F. Burkett,	4,000
Sec. of State, Charles Kinney,	4,000	Sup't Public Inst'n, O. T. Corson,	2,000
Auditor, W. J. Guilbert,	4,500	Insurance Com'r, W. S. Matthews,	4,000
Treasurer, S. B. Campbell,	3,500		

The early history of the state abounds in episodes of Indian warfare. The first permanent settlement was made by New Englanders. Connecticut for a long time held three million acres, called the Western reserve, which still retains New England ways and manners. Ohio was admitted to the Union in 1802. The name is of Indian origin, freely translated, "The Beautiful River." "Buckeye," the popular title, refers to the numerous Buckeye trees bearing an eye-like nut. Ohio is one of the wealthiest and most popular of the states. The surface is partly hilly, but contains extensive plains, with rich enduring soil. The Ohio river system supplies facilities for transportation by water, but is also a source of destructive overflows. Ohio's climate is changeable and severe, resembling somewhat that of New England. Along the shore of Lake Erie the climate is modified by the influence of water. Manufactures of Ohio are extensive in ironwork, glass, machinery and a great variety of products. Cincinnati and Cleveland are leading cities. The coal region covers 10,000 square miles and there are deposits of iron ore, salt, limestone and great quarries of building stone, also petroleum wells and natural gas. The state is first in output of carbonate ore and sandstone. Farming is still the leading industry of the state, and improved methods have greatly increased the productiveness of the soil. Wheat, corn, oats, potatoes, tobacco, hay, maple sugar, fruit, dairy products are leading items. The lake shore section is excellent for fruit, and grapes have been found profitable even at the low prices of recent years. Over 25,000,000 pounds of tobacco were produced in 1895, over a million tons of hay and 13,000,000 bushels of potatoes. There are about 10,000,000 acres of tilled land. The resources of Ohio are both large and well balanced, insuring a future of long-continued and steady development.

OKLAHOMA, "The Boomers' Paradise."

Governor, W. C. Renfrow,	\$2,600	Treasurer, M. L. Turner,	\$1,500
Sec. of Ter., Thos. J. Lowe,	1,800	Ch'f Justice, Frank Dale,	3,000
Auditor, E. D. Cameron,	2,000		

Formerly a part of Indian territory, the section called Oklahoma was acquired by purchase from the various tribes. In 1889 the section was formally opened for settlement. Before that time the government troops had been kept busy ejecting the illegal white settlers or "boomers," from which class the section derives its nickname. The opening of the territory was the scene of a wild rush for locations, and cities arose in a day. The name Oklahoma has been translated, "Beautiful country." There are three supreme court justices and a system of lesser courts. Court decisions are subject to revision by the United States

Right wrongs no man.

State Laws of Marriage.

States and Territories.	Age at which minors are capable of marrying.		Age at which parental consent is required.		Prohibited Degrees.	States and Territories.	Age at which minors are capable of marrying.		Age at which parental consent is required.		Prohibited Degrees.
	Male.	Female.	Male.	Female.			Male.	Female.	Male.	Female.	
*Ala.,	17	14	21	18	Ancestors, descendants, brothers, sisters, uncles, aunts, nephews, nieces, step-relatives.	*Mich.,	18	16	16	16	Same as Alabama.
						*Minn.,	18	15	21	18	Nearer of kin than first cousins.
						Miss.,	14	12	21	18	Same as Alabama.
						*Mo.,	15	12	21	18	Same as Arizona.
						*Mont.,	18	16	21	18	Same as Arizona.
Ariz.,	..	..	18	16	First cousins and nearer of kin.	*Neb.,	18	16	21	18	Same as California
*Ark.,	17	14	21	18	Same as Arizona.	Nev.,	18	16	21	18	Same as Arizona.
Cal.,	18	15	18	15	Same as Arizona, except as to first cousins.	*N. H.,	14	13	..	..	Same as Alabama, and first cousins.
						N. J.,	14	12	21	18	Same as Alabama.
*Col.,	14	12	21	18	Same as Arizona.	N. M.,	18	15	21	18	Same as Arizona.
*Conn.,	18	16	21	18	Same as Alabama.	N. Y.,	18	16	..	18	Ancestors, descendants, brothers and sisters.
*Del.,	14	12	21	21	Same as Alabama; also great-nephews and great-nieces.	N. C.,	16	14	18	18	Same as Minnesota
						*N. D.,	18	15	21	18	Same as Arizona, and first cousins.
*D. of C.	14	12	21	16	Same as Alabama.	Ohio,	18	16	21	18	Same as Arizona.
Fla.,	14	12	21	21	Within the Levitical degree.	*Okla.,	18	15	..	..	Same as Alabama, and first cousins.
*Ga.,	17	14	21	18	Same as Fla., and step-relatives.	Oregon	18	15	21	18	Same as Minnesota
*Idaho,	..	..	18	16	Same as California	Penn.,	14	12	21	21	Same as Alabama.
*Ill.,	17	14	21	18	Same as Arizona.	R. I.,	14	12	21	21	Same as Alabama.
*Ind.,	18	16	21	18	Same as Arizona.	S. C.,	14	12	..	16	Same as Alabama.
*Iowa,	16	14	21	18	Same as Alabama.	S. Dak.	18	15	18	16	Same as N. Dakota
Kan.,	15	12	..	..	Same as Arizona.	Tenn.,	14	12	..	..	Same as Alabama.
*Ky.,	16	14	21	21	Same as Alabama.	*Texas,	16	14	21	18	Same as Alabama.
La.,	14	12	21	21	Same as Alabama, except as to step-relatives.	Utah,	14	12	21	18	Same as Arizona.
						*Vt.,	16	14	21	18	Same as Alabama.
*Maine	14	12	21	21	Same as Alabama.	*Va.,	14	12	21	21	Same as Alabama.
*Md.,	14	12	21	16	Same as Alabama.	Wash.,	21	18	21	18	Same as Arizona.
Mass.,	14	12	21	18	Same as Alabama.	W. Va.,	14	12	21	21	Same as Alabama.
						Wis.,	18	15	21	18	Same as Minnesota
						*Wyo.,	18	16	21	21	Same as Arizona.

* License required. a Without parents or guardians, those over 18 do not require consent.

Bigamous marriages are void and punishable. In about one-half of the states, marriages between negroes and whites are void or illegal. Many states have laws against marriage of paupers, idiots and insane persons. Marriage by force or fraud is punishable, and usually void on consent of injured party. Oregon and Nevada forbid marriage of whites with Indians or with Chinese.

The following figures have been given for the population of the various European countries 100 years from now, figuring on the same relative growth as for the past century: Russia, 250,000,000; Great Britain and Ireland, 100,000,000; Germany, 90,000,000; Austria-Hungary, 75,000,000; France, 45,000,000 and Italy 45,000,000. The British subjects elsewhere on the globe at that time should make England rank with Russia and there would be but two great powers in Europe then. The United States should be strongly in the lead with 700,000,000 inhabitants.

Good right needs no help.

supreme court. The laws resemble those of Nebraska. A large part of the country is still occupied by Indians, who receive supplies from government and are ruled by government agents. Oklahoma has nearly the area of Ohio, with resources not yet developed or even fully understood. The climate resembles somewhat that of Kansas, but warmer. There is much good soil in the valleys well adapted to raising corn, wheat, tobacco, cotton and fruits. The western section needs irrigation to develop its full possibilities. The Cherokee outlet is well adapted for grazing, as is also the former Public Land Strip, made a part of Oklahoma in 1889.

OREGON, "The Webfoot State."

Governor, W. P. Lord,	\$1,500	Att'y Gen., C. M. Idleman,	—
Sec. of State, H. R. Kincaid,	1,500	Ch'f Justice, R. S. Bean,	\$2,000
Treasurer, Philip Metschan,	800	Sup't Public Inst'n, G. M. Irwin,	1,800

This section was for a long period disputed ground between Spain, France, Russia, Great Britain and the United States. Finally the question of ownership sifted down to the claim of Great Britain and the United States. At last the country became a territory in 1848 and a state in 1859. The name Oregon probably comes from the Alquiquin word meaning "Fair." The moisture of the coast climate has given rise to the title, "Webfoot state." Oregon has twice the area of England and is equal to New England and Indiana united. The surface is much like that of New England, with alternation of steep hill or mountain and fertile valley. Eastern Oregon is a country of grain growing and grazing. The sheep industry is important. Fruit yields well. Much of the country needs irrigation and many canals for that purpose have been constructed. The soil is partly of volcanic origin, and full of grain-producing fertility. Coal, iron, gold and silver and other minerals are found. Western Oregon is a rugged country with fertile valleys and a rainy, mild climate. Vegetation grows luxuriantly, and fruit succeeds well. The forests are extensive. West of the Cascade mountains lies the Willamette valley, one of the most fertile regions in the state. The Columbia river is one of the largest in the country and affords 1200 miles of navigable water. Salmon fisheries amount to several million dollars per year. Water power is abundant. For variety and nature of its natural wealth, this state, and sometimes Washington, also, has been styled the Pennsylvania of the Pacific. Oregon is destined to become one of the most prosperous and powerful of the states.

PENNSYLVANIA, "The Keystone State."

Governor, D. H. Hastings,	\$10,000	Treasurer, B. J. Haywood,	\$7,400
Lieut. Gov., Walter Lyon,	5,500	Ch'f Justice, J. P. Sterrett,	8,500
Sec. Com'wealth, Frank Reeder, Fees,	5,700	Sup't Public Inst'n, N. C. Schaeffer,	4,000
Sec. Int. Aff'rs, J. W. Latta, Fees and	3,500	Insurance Com'r, J. H. Lambert, Fees,	3,000
Auditor Gen., A. H. Mylin, Fees and	4,200		

The tract now constituting this great state was granted to the Quaker founder, William Penn, in 1680, in payment of a debt of about \$80,000. Many of the early settlers were Dutch, Swiss and Scotch-Irish, besides the English and Welch quakers, who came with Penn. During the revolution after the fall of New York, this state was long the scene of conflicts. In the war of 1812 Pennsylvania had a larger force engaged

He who hastens to be rich incurs peril.

ed than did any other state. Pennsylvania contributed 362,284 to the federal army of the civil war. The seven members of the supreme court are chosen for 21 years. There are 48 district courts. The governor receives \$10,000, the highest salary paid except by New York and New Jersey, which states pay the same amounts. "Pennsylvania" means Penn's woodlands. It is called Keystone state because located midway among the thirteen original states. Pennsylvania was the only one of the original states having no sea coast, but Philadelphia is practically a seaport. The climate is temperate, but subject to extremes. Rainfall varies from 36 to 48 inches. Pennsylvania leads in production of coal, iron, steel, petroleum and nickel. It is estimated that the stores of anthracite coal will last for centuries. Commerce is favored by the situation of the state. Philadelphia is a great port and a leading manufacturing city. The state leads in wool manufactures, ranking next to New York and Chicago in population. Pittsburg is a large city at the head of navigation of the western rivers. Agriculture employs one-fifth the working population of the state. Corn, oats, wheat, rye, buckwheat, potatoes, tobacco and hay are leading crops. The standing in 1895 was second in value of hay and potatoes. The southeastern counties and the inland valleys are the richest farming sections.

RHODE ISLAND, "Little Rhody."

Governor, Elisha Dyer,	\$3000	Treasurer, Samuel Clark,	\$2,500
Lieut. Gov., A. J. Pothier,	500	St. Auditor and Insurance Com'r, A.	
Sec. of State, C. P. Bennett,	3,000	C. Landers,	
Att'y Gen., W. B. Tanner,	2,500		

The original owners were the Narragansett Indians, whose descendants have lately been pushing claims which if successful would have given them an important portion of the state. Roger Williams founded a colony at Providence in 1636 under wise and liberal principles, and so judiciously was the royal charter granted the united Rhode Island colonies that it was allowed to remain in force until 1843, long after the revolution. In the civil war Rhode Island sent a quota of 23,236 troops from a population of 175,000. The state was named in honor of the brave defense of the Mediterranean Isle of Rhodes by the knights of St. John. Because the smallest state in the union, it is nicknamed "Little Rhody." The governor of Rhode Island, elected annually, has no veto power. Senators and representatives are chosen yearly and receive \$1 per day of session, the smallest salary of the kind paid by any state. In density of population, Rhode Island exceeds all the states. About one-fourth the people are foreign born. The climate is milder than that of the other states of New England on account of the influence of the gulf stream. Some coal is mined, also building stone of high grade. Water power is abundant and well utilized. One-fourth of the state is in forests. Some of the land is very fertile, especially that of the island of Rhode Island. Newport is a summer resort of national fame. Extensive fisheries and oyster beds exist. Manufactures are the chief source of wealth, and the whole state is like a workshop. The first spinning factory in the country was set up at Pawtucket. Providence is the second city in importance in New England. Agriculture is essentially like that of the two neighboring New England states, and the tendency is to cater to the large manufacturing population by the production of

Revolutions never go backward.

increasing proportions of dairy and poultry products, garden stuff and fruit. Because of the good markets afforded, the farmers of the state as a class are prosperous

SOUTH CAROLINA, "The Palmetto State."

Governor, W. H. Ellerbe,	\$3,500	Treasurer, W. H. Timmerman,	\$1,950
Lieut. Gov., M. B. McSweeney,	1,950	Ch'f Justice, Henry McIver,	3,500
Sec. of State, D. H. Tompkins,	1,950	Sup't Public Inst'n, W. D. Mayfield,	1,900
Controller Gen., James Norton,	1,950	Adj't Gen., J. G. Watts,	1,200
Att'y Gen., Wm. A. Barber,	2,100		

North and South Carolina were practically separated since 1690; but were not set apart until 1729. The early immigrants included miscellaneous elements from all parts of the country, also Dutch, Swiss, German, Welch and French Huguenots. April 12-13, 1861, the opening guns of the civil war were fired at Fort Sumter. At one time the state had 44,000 men in the Confederate armies. South Carolina has always possessed able and vigorous public men and has been in some ways the leader of the southern states. The climate is mild, with warm, dry winters and a generally even temperature. The pine forest region is one of America's most noted health resorts. Manufactures, especially that of cotton, are growing with extreme rapidity. Mines of gold, silver, lead, copper and graphite are worked. The phosphate mines are important. Agriculture is still the most important industry and the leading staples include grain, hay, rice, tobacco and cotton. Most of the farm labor is done by negroes, of which the state has a larger population than any other. The cotton crop amounts to nearly a million bales. South Carolina rice is the best in the market. In recent years the vegetable and fruit business has reached great proportions and extensive shipments are made to northern markets, especially strawberries, tomatoes and asparagus. The orchard fruits include oranges and lemons, as well as apples and pears. In natural resources and advantages, South Carolina possesses a variety and scope not surpassed by any other of the states.

SOUTH DAKOTA, "The Coyote State."

Governor, A. O. Ringerud,	\$2,500	Treasurer, K. G. Phillips,	\$1,800
Lieut. Gov., D. T. Hindman,	10 per day	Ch'f Justice, Dighton Corson,	2,500
Sec. of State, W. H. Roddler,	1,800	Sup't Public Inst'n, Frank Crane,	1,800
Att'y Gen., S. V. Jones,	1,000	Land Com'r, J. T. Lockhart,	—
Auditor, H. E. Mayhew,	1,800		

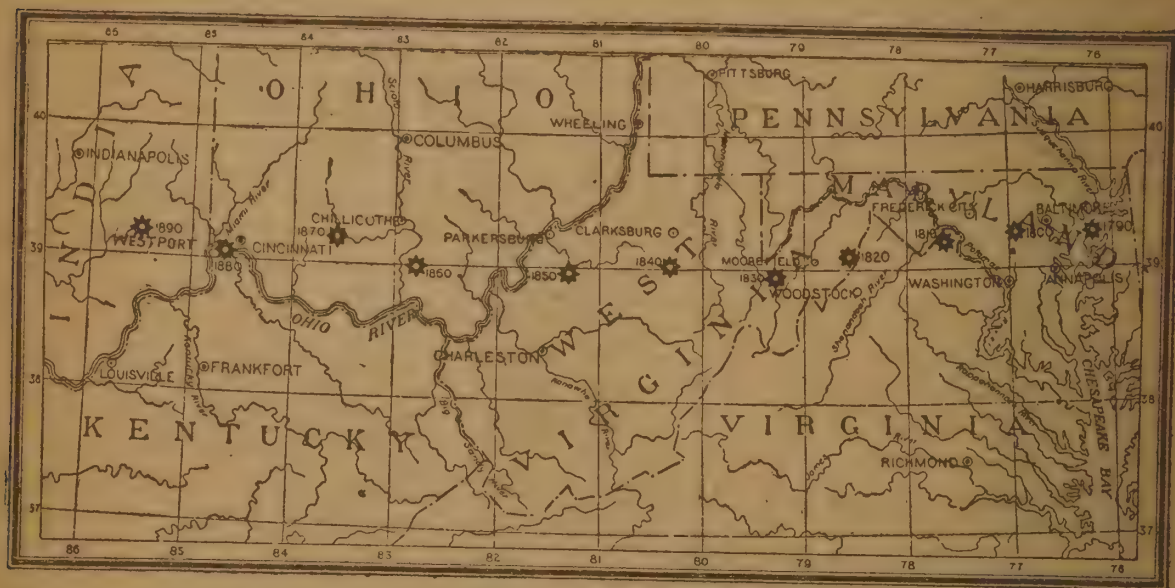
The southern part of the territory of Dakota was settled later than the northern section. Sioux Falls was the first town and was founded by colonists from Iowa in 1857. During the Sioux war of 1862, the settlers endured great sufferings. In 1889, the southern half of Dakota became a state. It is sometimes called the Artesian state, from its remarkable wells of that description, and also "The coyote state," from the prairie wolves formerly abundant there. The state governments of North and South Dakota are similar. The governor has power to remit fines and forfeitures, grant reprieves, commutations and pardons. The militia comprises all able-bodied male citizens between eighteen and forty-five years. There are three justices of the supreme court and several circuit and county courts. The surface is mostly level, with great areas of open, treeless plains, with soil of great capacity for grain production. There is a lighter snowfall than in New York. On account

If all men were just, there would be no need of valor.

OUR OWN COUNTRY AND GOVERNMENT.

Presidents of the United States.

Year of Qualificat'n	Name.	Where from.	Term of office.
1789,	George Washington,	Virginia,	8 years.
1797,	John Adams,	Massachusetts,	4 years.
1801,	Thomas Jefferson,	Virginia,	8 years.
1809,	James Madison,	Virginia,	8 years.
1817,	James Monroe,	Virginia,	8 years.
1824,	John Quincy Adams,	Massachusetts,	4 years.
1829,	Andrew Jackson,	Tennessee,	8 years.
1837,	Martin Van Buren,	New York,	4 years.
1841,	Wm. Henry Harrison,	Ohio,	1 month.
1841,	John Tyler,	Virginia,	3 years, 11 months.
1845,	James Knox Polk,	Tennessee,	4 years.
1849,	Zachary Taylor,	Louisiana,	1 year, 4 months, 5 days.
1850,	Millard Fillmore,	New York,	2 years, 10 months, 26 days.
1853,	Franklin Pierce,	New Hampshire	4 years.
1857,	James Buchanan,	Pennsylvania,	4 years.
1861,	Abraham Lincoln,	Illinois,	4 years, 1 month, 10 days.
1865,	Andrew Johnson,	Tennessee,	3 years, 10 months, 20 days.
1869,	Ulysses S. Grant,	Illinois,	8 years.
1877,	Rutherford B. Hayes,	Ohio,	4 years.
1881,	James A. Garfield,	Ohio,	6 months, 15 days.
1881,	Chester A. Arthur,	New York,	3 years, 5 months, 15 days.
1885,	Grover Cleveland,	New York,	4 years.
1889,	Benjamin Harrison,	Indiana,	4 years.
1893,	Grover Cleveland,	New York,	4 years.
1897,	William McKinley,	Ohio,	



WESTWARD MOVEMENT OF CENTER OF POPULATION.

The asterisks (*) mark the center of population as determined by the federal census every ten years since 1790. The center of population is the center of gravity of the population of the country, each individual being assumed to have the same weight. From 1790 to 1800 the center moved westward 41 miles; 1800 to 1810 it went west 36 miles; 1810-'20, 50 miles; 1820-'30, 39 miles; 1830-'40, 55 miles; 1840-'50, 55 miles; 1850-'60, 81 miles; 1860-'70, 42 miles; 1870-'80, 58 miles; 1880-'90, 48 miles. Total westward movement in 100 years, 505 miles. The precise position in 1890 was: Latitude $39^{\circ} 11' 56''$; longitude $85^{\circ} 32' 53''$.

What is just and right, is the law of laws.

of the dryness of the air, the cold of winter is less noticeable, and the effect of the warm Pacific winds is quite marked. Occasional blizzards are the only really severe feature of the climate. The Black Hills district is rich in gold, silver, lead and tin, also coal, petroleum, natural gas and many valuable minerals. The artesian wells of the James valley are powerful enough to drive machinery. The water is said to come from the Rocky mountain system far away. South Dakota is a great agricultural state. Corn of fine quality, wheat, oats, flax, wool and live stock are principal crops. More than one and one-half million tons of hay and over 40,000,000 bushels of potatoes are grown. Owing to the low prices of grain, stock raising and dairying have been increasing of late. The country is well adapted for all kinds of general agriculture. Manufactures are making rapid progress, and, for a new state, education is receiving unusual attention.

TENNESSEE, "The Volunteer State."

Governor, R. L. Taylor,	\$4,000	Treasurer, Ins. Com'r, E. B. Craig,	\$3,500
Sec. of State, W. S. Morgan,	3,000	Sup't Public Inst'n, S. G. Galbraith,	2,000
Comptroller, J. A. Harris,	3,500	Ch'f Justice, D. A. Snodgrass,	3,000

The early settlers of Tennessee came largely from Virginia and North Carolina, about 1765. At first belonging to South Carolina, the territory was ceded to the government in 1790 and became a state in 1796. During the civil war, the sentiment of the people was divided, but the state as a body joined the secession movement, and many important battles were fought within its borders. Since the war the industrial progress of the state has been rapid. The great exposition held from May to October, 1897, in honor of the centennial of state existence, made evident the resources and recent progress of the state. There are five members of supreme courts, eleven chancellors elected for eight years, besides 14 circuit courts and various minor courts. The name Tennessee has been translated, "A Bend in the River." From the martial spirit of her citizens, the title "Volunteer state" has been given, also the appellation, "Mother of southwestern statesmen," from the numerous distinguished men which Tennessee has sent forth. The climate is mild and healthful for the most part. The Cumberland plateau has a delightful summer climate. The eastern sections are somewhat mountainous. In the west along the rivers are rich bottom lands producing enormous crops. The great central Tennessee valley is often called the garden of the state. There are great forests of red cedar, pine, hemlock, chestnut and black walnut. An industrial boom has been brought about by the great wealth of iron and coal. Chattanooga, Nashville and newer cities have sprung into prominence. About 1892, there was a commercial reaction, but since then the rapid development has been resumed. Corn, wheat, oats, are important crops. In 1895 Tennessee produced 550,000 tons of hay, 2,443,000 bushels of potatoes, 1,874,000 pounds of wool, 172,000 bales of cotton, 43,220,000 pounds of tobacco. The tobacco of Tennessee is mild and light-colored. Fruit is becoming a very important crop. The famous stock farm, Belle Meade, near Nashville, comprises 5500 acres. No state is better endowed with reference to climate, soil, scenery and conditions of health and prosperity.

He is most powerful who governs himself.

TEXAS, "The Lone Star State."

Governor, C. A. Culberson,	\$4,000	Land Com'r, A. J. Baker,	\$2,500
Lieut. Gov., Geo. T. Jester,	Per diem 5	Ch'f Justice, R. R. Gaines,	4,000
Att'y Gen., M. M. Crane,	4,000	Sup't Public Inst'n, J. M. Carlisle,	2,500
Controller, R. W. Finley,	2,500	Treasurer, W. B. Wortham,	2,500

The history of Texas is unique among the states. Settled in 1690 by the Spaniards, it was a dependency of Mexico until the American colonists achieved independence about 1837, and the Republic of Texas subsequently enjoyed several years of national life, but it finally joined the union about 1845. Texan boundary disputes gave rise to the Mexican war of 1848. Texas reserved its own public lands and possesses the right to divide it into states if desired. As showing the contrast between the largest and the smallest American states, Texas is larger than many European countries and has area to make 240 states the size of Rhode Island. The state capitol building is the largest in America. "Texas," is from the name of a local tribe of Indians and means "Friends." "Lone Star" refers to the single star on the flag of the Texan republic. Texas has a large school fund in the shape of land. The state is four times the size of New England and six times as large as New York and seven times the area of Ohio. From Texarkana to El Paso equals the distance from New York to Chicago. The surface is generally level, but sloping from mountains of the northwest to the gulf lowlands. Climate varies greatly in the various sections, but is in general hot and dry in summer, and in winter mild, except for occasional cold, north winds. Some sections require irrigation for profitable farming. Mineral resources include gold, silver, iron, coal, copper, gypsum, granite, etc. Since the improvement of the harbors of Galveston and other ports, together with the completion of various railroads systems, the commerce of the state has rapidly increased, and the gulf ports have become serious rivals of the grain-exporting cities on the Atlantic coast. Houston and Dallas are cities of rapid growth. Two-thirds of Texas people follow agriculture. The state leads in cotton, producing sometimes about 20,000,000 bales per year. Sugar cane is an important crop. Corn, oats, wheat and hay are extensively grown. In the sheep and wool industry Texas is only equalled by Montana. During the past two years, interest in live stock has greatly increased. Texas leads in the cattle industry. Fruit growing and general farming is making rapid progress. Land in Texas is very abundant and cheap, and the opportunities afforded to men of small capital to engage in profitable farming are as favorable as can be found anywhere. There are still millions of acres of state lands.

UTAH, "The Inter-Mountain State."

Governor, Heber M. Wells,	\$2,000	Treasurer, James Chipman,	\$1,000
Sec. of State, J. T. Hammond,	2,000	Att'y Gen., A. C. Bishop,	1,500
Auditor, M. Richards, Jr.,	1,500	Sup't Public Inst'n, Dr. J. R. Park,	1,500

This most recent addition to the states was admitted in 1895. Explored by the Spaniards and by Fremont and others, Utah's history partially begins with the settlement of the Mormons in 1847, after their expulsion from Illinois. The Mormons have increased with great rapidity. They are thrifty and successful farmers, and conduct business on a well organized co-operative plan. The book of Mormon contains sixteen les-

Power weakeneth the wicked,

son books and recounts ancient history of nations supposed to have once inhabited the continent. The author named Mormon is claimed to have hid them where they were found by Joseph Smith, the founder of the sect. The constitution of Utah contains an express prohibition against plural marriage, a practice formerly upheld by the Mormons. The surface is mountainous, with elevated plateaus. Great Salt Lake contains from 13 to 23 per cent of salty matter. Mineral resources are abundant, especially silver, lead, gold and copper, also salt, iron, petroleum and a variety of minerals. Salt Lake City, Ogden and Provo are important cities. Manufactures are increasing. Farming is carried on chiefly through irrigation, with thousands of miles of canals. Grain, fruit, hay, live stock and cotton are specialties. The farming class is generally prosperous, crops being quite certain and local markets excellent.

VERMONT, "The Green Mountain State."

Governor, Josiah Grout,	\$1,500	Treasurer, H. F. Field,	\$1,700
Lieut. Gov., Nelson W. Fisk,	Per day 6	Ch'f Justice, Jonathan Ross,	3,000
Sec. of State, C. W. Brownell,	1,700	Adj't Gen., Theo. S. Peck,	1,000
Auditor, F. D. Hale,	2,000	Sup't Public Inst'n, M. S. Stone,	2,000

The territory now the state of Vermont was claimed by both New Hampshire and New York, but the conflicting claims were finally adjusted. Vermont entered the Union in 1791, being the first state added to the thirteen. In the civil war, Vermont sent 34,238 troops, of which 5128 were killed, a larger proportion of loss than that of any northern state. The climate is severe, with sudden changes and long winters, but the air is clear, pure and healthful. From the grass covered Green mountains which traverse the state, its popular title, the Green Mountain State, is derived. Lake Champlain, 118 miles long, is the main link in inland navigation between Montreal and New York. The mineral wealth consists largely of granite and marble. Manufactures include farming tools, organs, scales, paper, etc. Vermont is essentially a dairy state, and has also great advantages for the production of sheep and horses. The state leads in product of maple sugar. Fish and game are plenty. The value of farm products averages \$400 to each person engaged in the business. Vermont makes more butter per cow than is made in any other state. The hay crop averages more per farm than any other state. Land can be had at extremely low prices; in some cases at \$3 to \$5 per acre, with improvements. Many Swedish and French Canadian immigrants have in recent years settled in the state.

VIRGINIA, "The Old Dominion State."

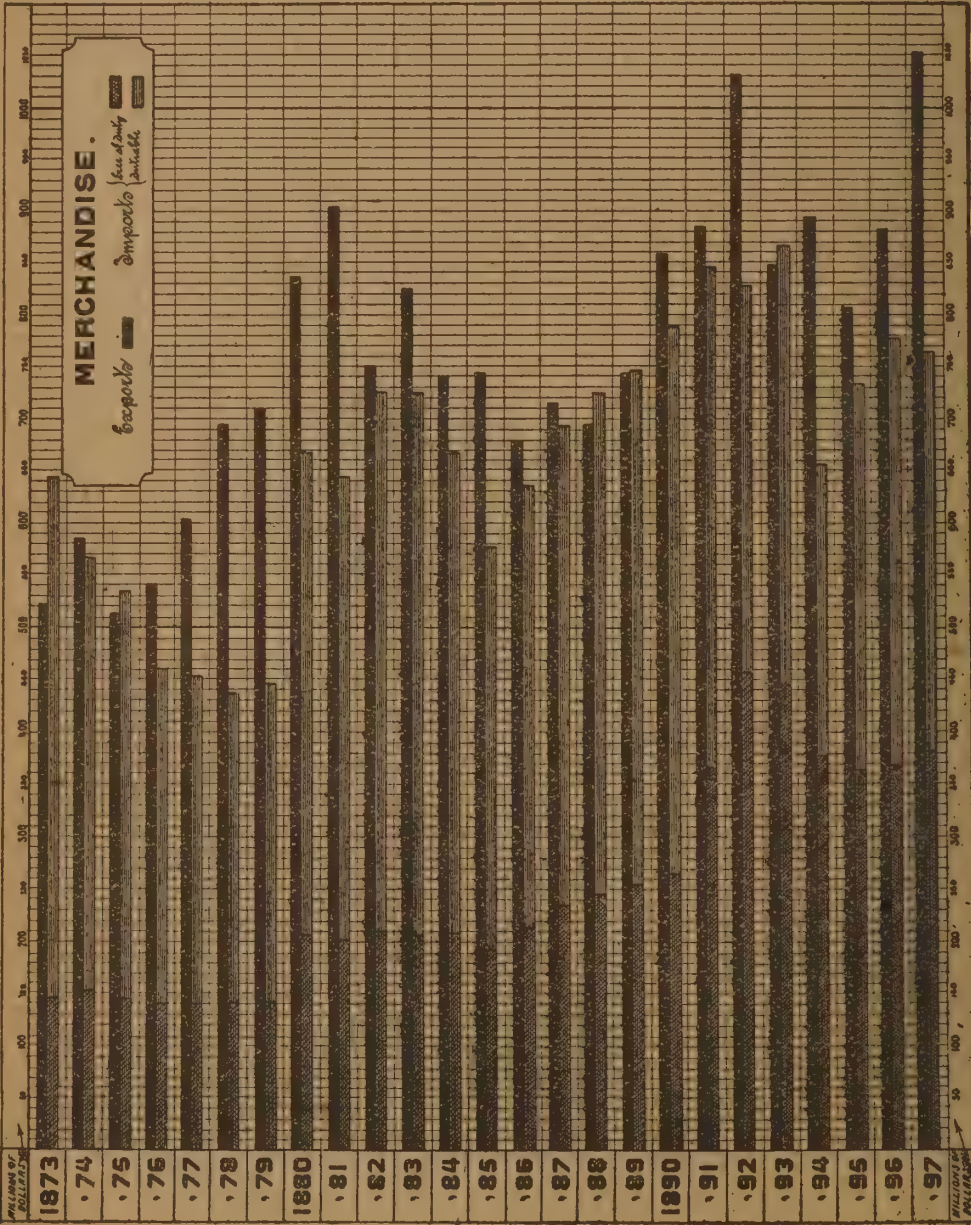
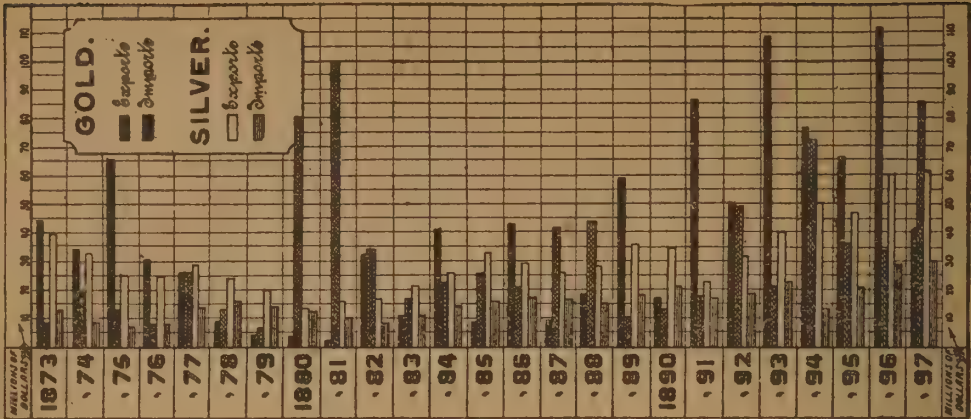
*Governor, Chas. T. O'Ferrall,	\$5,000	Auditor, Morton Marye,	\$3,000
Lieut. Gov., R. C. Kent,	400	Treasurer, A. W. Harman, Jr.,	2,000
Sec. of State, J. T. Lawless,	2,000	Pres. Ct. of Appeals, James Keith,	3,500
Att'y Gen., R. T. Scott,	2,500	Sup't Public Inst'n, John E. Massey,	2,000

*For officers elected in 1897, consult index.

In the early affairs of the colonies, Virginia was a leading factor. Settled at Jamestown in 1607, the commonwealth became the most powerful and populous of the early states with large western possessions, which after the Revolution were given up to become new states. General Washington was a Virginian, and in the state occurred the closing scene of the Revolution, with the surrender at Yorktown. During the civ

No power, no respect.

FOREIGN COMMERCE OF THE UNITED STATES, 1873-1897.



war Virginia suffered more than any other state, as the battle field of hostile forces, losing the flower of her citizenship and a vast amount of property, besides loss of territory by the partition of the western portion into a new state. Education is provided for with a fund of \$2,000,000. Six great divisions are commonly made of the area: Tide water, Middle, Piedmont, Valley, Appalachian, Blue Ridge. These sections differ considerably in soil and in climate. The winters are in most sections mild, with summers hot in the lowlands and cool in the more elevated regions. Conditions are generally favorable to health and to good physical development of the human race. Recent developments in manufactures and the production of mineral wealth have been surprising. The iron product is next to that of Alabama among the southern states. Coal is mined in large amounts. The lead mines are the largest in the south and the manganese deposits the most productive in the world. Zinc, salt, cement, granite are mined. Manufactures in iron, tobacco, cotton, fertilizers and miscellaneous products are increasing very fast. Richmond, Norfolk and Roanoke are important centers. Agriculture is prosperous. Mild winters and long open seasons favor the production of all crops and of live stock. Virginia leaf tobacco is famous for quality. Forest products are important. The blue grass pasture sections favor dairying and that branch of farming is increasing. The district around Norfolk is well known for the production and shipping of vegetables and fruit for northern markets. The business amounts to at least \$6,000,000 per year. The rich soils of the valley regions are adapted for general farming. The thinner soils are especially suitable for vegetable gardening, peaches, apples, peanuts, light tobacco and other specialties. Farms have been selling at low prices ever since the civil war, and many northerners, in colonies or as individuals, have found prosperous homes within the Old Dominion.

WASHINGTON, "The Evergreen State."

Governor, John R. Rogers,	\$4,000	Ch'f Justice, Elmer Scott,	\$4,000
Lieut. Gov., Thurston Daniels,	1,000	Sup't Public Inst'n, F. J. Brown,	2,500
Sec. of State, Wm. D. Jenkins,	2,500	Att'y Gen., P. H. Winston,	2,000
Auditor, Neal Cheatham,	2,000	Land Com'r, Robert Bridges,	—
Treasurer, C. W. Young,	2,000		

Together with Oregon this section was long disputed territory. It was finally acquired definitely by the United States and settled at first largely by people from New England. The state has an area equal to that of New England, and from many of its characteristics has frequently been compared with that section, which it greatly surpasses, however, in natural resources. From its mineral wealth, the state is also termed the Pennsylvania of the west, also by reason of the moist, mild winters of the coast permitting the continued growth of vegetation, the title, Evergreen State, has been accorded. Education has received more attention than in most of the newer states. There are still thousands of Indians who live on reservations. The coast contains excellent harbors and is becoming a great commercial section, with lines of trade with Japan, China, and South America. The climate of the coast is much like that of southern England. Fisheries and oyster beds are of great importance. The deposits of coal, iron and gold are very extensive. Manufactures of all kinds are rapidly springing up under the stimulus of abundant water power, fuel and raw material. The lumber

Ponder long before you act.

trade is important. Tacoma, Seattle and Spokane are among the most rapidly growing cities in the United States. Agriculture is a great industry; wheat growing, stock raising and general farming under irrigation are followed in the dry and level eastern sections. In hop culture the state is likely to surpass the older portions of the country. Western Washington is especially adapted for dairying, vegetables and fruit. In no state are to be found resources more abundant and diverse, and in no state is greater energy and enterprise being brought to bear in the realization of the vast possibilities.

WEST VIRGINIA, "The Pan Handle State."

Governor, G. W. Atkinson,	\$2,000	Treasurer, M. A. Kendall,	\$1,400
Sec. of State, W. E. Chilton,	Fees and 1,000	Sup't Public Inst'n, J. R. Trotter,	1,500
Auditor, I. V. Johnson,	2,200		

Until the time of the civil war, this section was a part of Virginia, but a majority of the people were not disposed to adopt the secession movement, and the forty western counties were formed into a state in 1863. Since the war commercial development has been rapid. Educational provisions include separate schools for white and for colored children. Nine-tenths of the people are native whites. The surface of West Virginia is mountainous, giving rise to the appellation, "Mountain State." The "Pan Handle" is a narrow strip sixty miles long, on the north. The deposits of coal cover 16,000 square miles, twice the area of Massachusetts. Iron, petroleum and natural gas are found. Among the principal manufactures are those of iron and steel, glass and pottery. The country is particularly adapted to the production of cattle, horses and sheep. Three-fourths of the state is covered with forest, supplying quantities of valuable lumber. The valley sections are rich and productive. Corn, wheat and oats are leading crops.

WISCONSIN, "The Badger State."

Governor, Edward Scofield,	\$5,000	Ch'f Justice, J. B. Cassoday,	\$5,000
Lieut. Gov., Emil Baensch,	1,000	Sup't Public Inst'n, John Q. Emery,	1,200
Sec. of State, Henry Casson,	5,000	R. R. Com'r, D. J. McKenzie,	3,000
Att'y Gen., Wm. H. Mylrea,	3,000	Insurance Com'r, Wm. A. Fricke,	3,000
Treasurer, S. A. Paterson,	5,000		

Wisconsin was at first a possession of France, and next of Great Britain. In the early years of the century the United States began to exclude British traders, but Wisconsin was not admitted to statehood until 1847. Mineral discoveries, railroads and cheap lands have caused rapid development. Many of the settlers came from the countries of northern Europe, but have readily become Americanized. Education is provided for by a large fund derived from sale of land. Catholics and Methodists are the leading religious denominations. The state contains considerable prairie land. In the northeast is a mountainous section rich in minerals. Lumber is a great source of wealth. The iron mines around Lake Superior are among the richest in the country. Zinc and lead are also mined. The early miners lived in dug-outs supposed to resemble the abode of the badger, hence the popular title of Wisconsin, the "Badger State." Oats, corn, wheat, barley, potatoes, apples, hay, tobacco and hops are leading agricultural productions. Dairying has become an industry of vast importance. Great shipments

There is always a clinging to the land of one's birth.



Hon. Wilfrid Laurier, Prime Minister of Canada.

Sir Geo. A. Kirkpatrick, Lieut.-Gov. of Ontario.

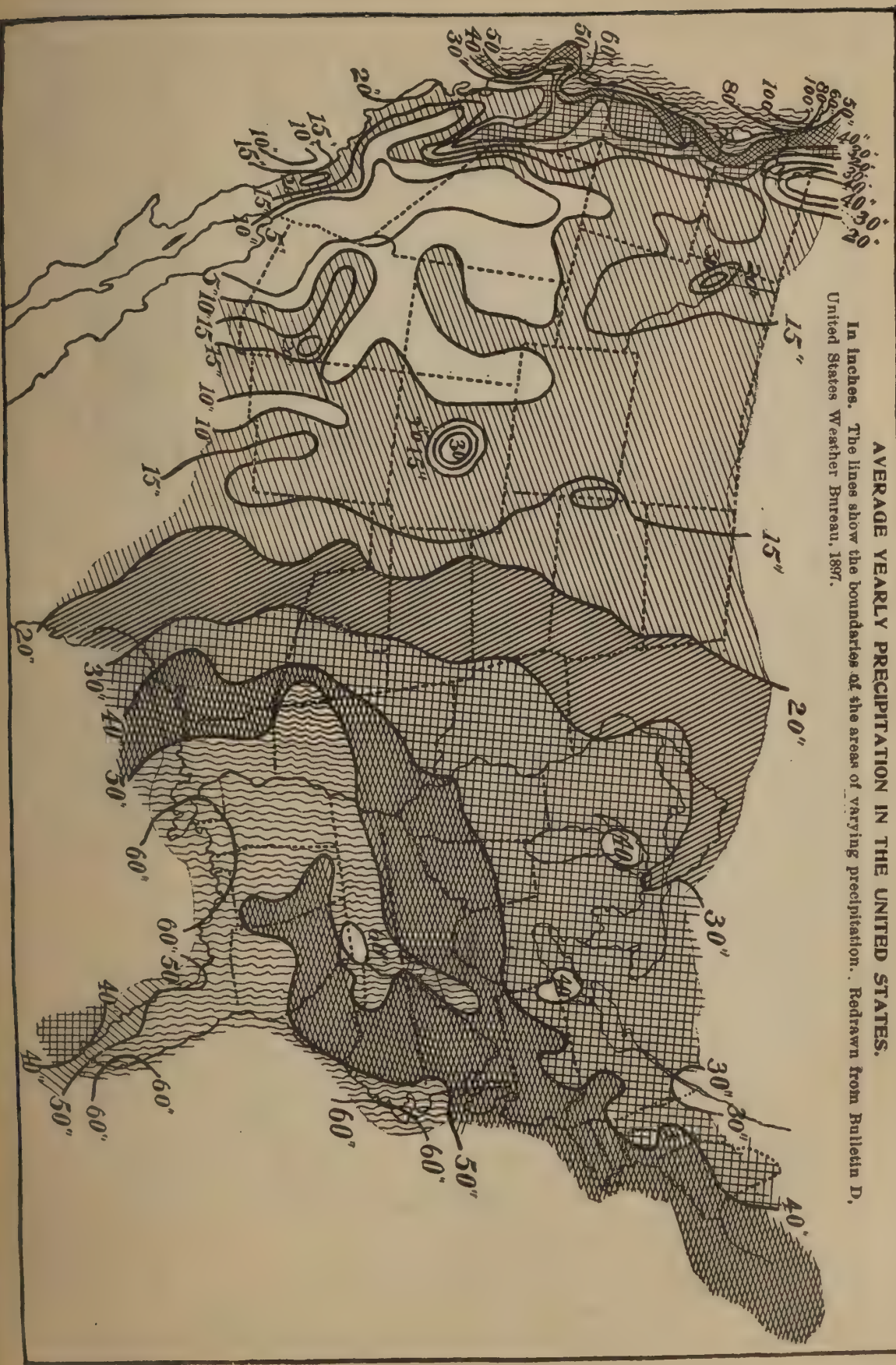
Hon. C. H. Mackintosh, Lieut.-Gov. of N. W. Territories.



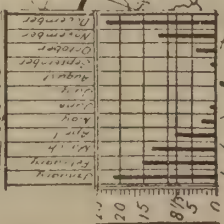
Hon. Malachy B. Daly, Lieut.-Gov. Nova Scotia.
 Hon. James C. Patterson, Lieut.-Gov. Manitoba.
 Hon. Edgar Dewdney, Lieut.-Gov. British Columbia.

Hon. A. R. McClellan, Lieut.-Gov. New Brunswick.
 Hon. Geo. W. Howland, Lieut.-Gov. Prince Edw. Island.
 Hon. J. A. Chapleau, Lieut.-Gov. Quebec.

AVERAGE YEARLY PRECIPITATION IN THE UNITED STATES.
In inches. The lines show the boundaries of the areas of varying precipitation. Redrawn from Bulletin D,
United States Weather Bureau, 1897.

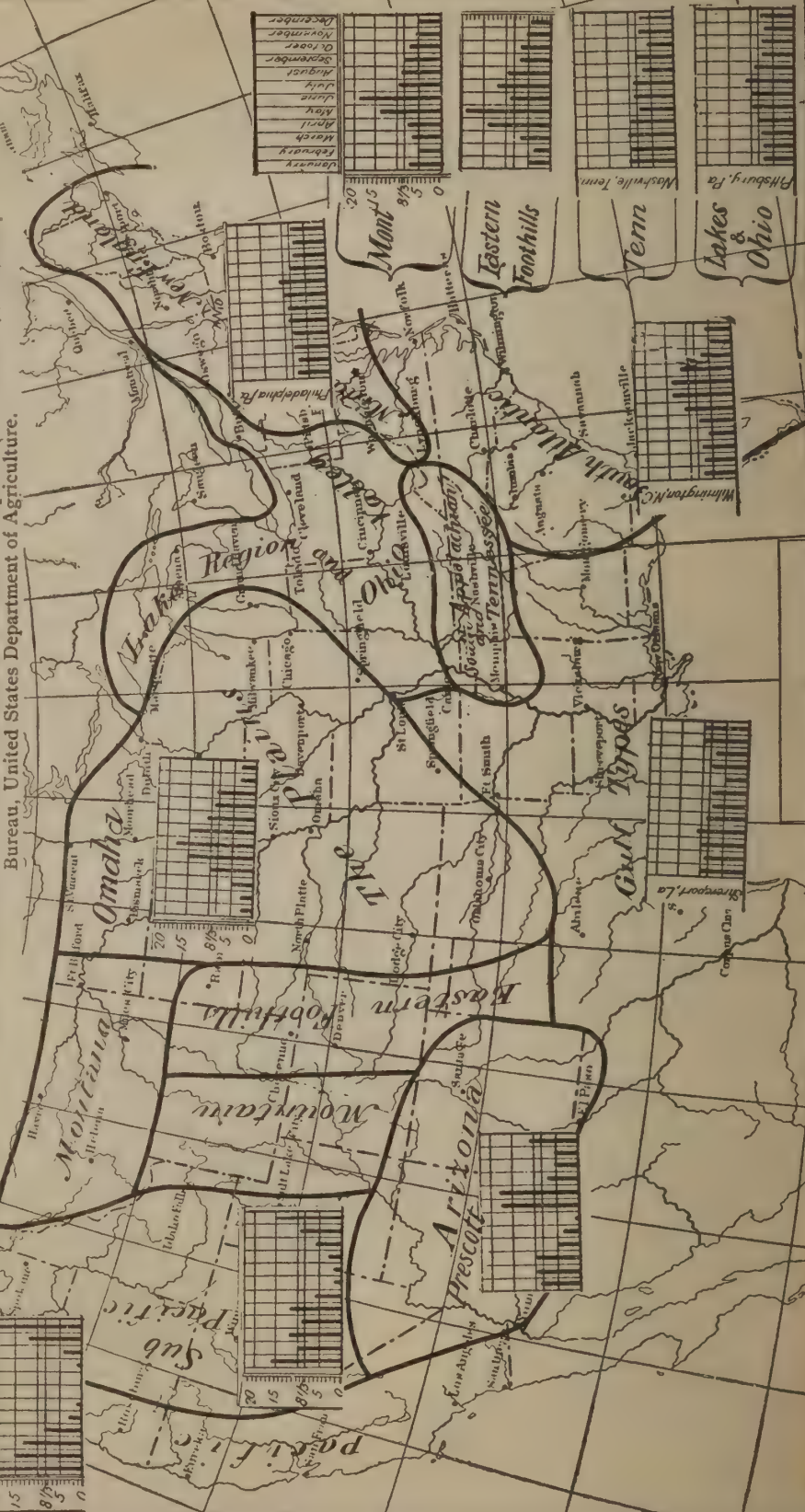


San Francisco



Boundaries of Weather Divisions—Monthly Precipitation.

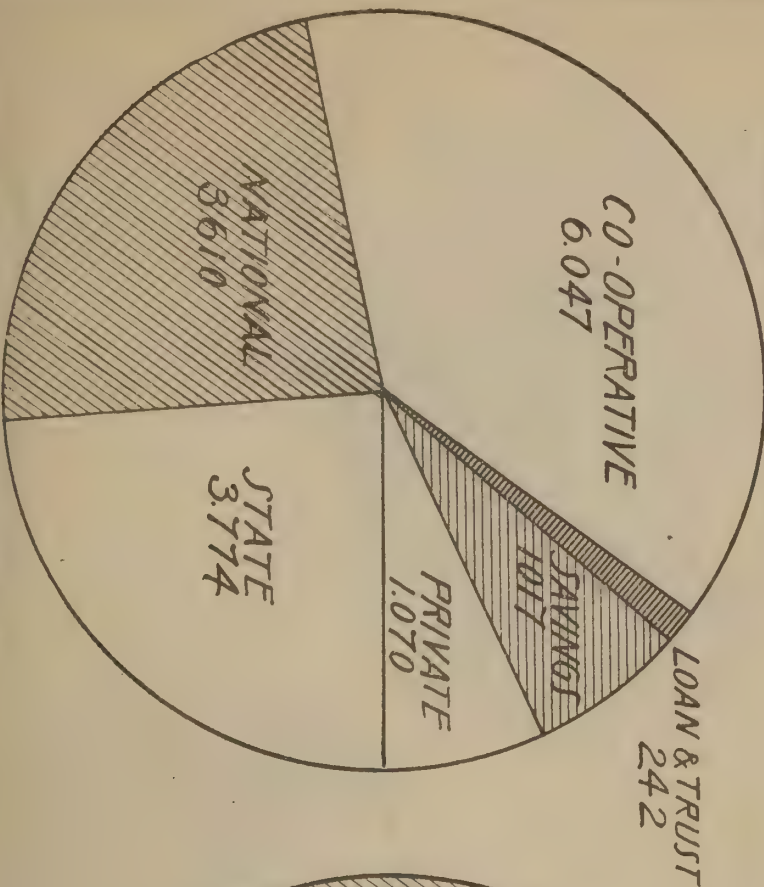
With charts showing average monthly rainfall in each division. The lines indicate percentage of precipitation each month. Thus in the Pacific region, at San Francisco, over 20 per cent. of the year's rainfall comes in January, while in the Middle and New England states, at Philadelphia, less than 8 per cent. of the year's precipitation comes in January. The mean precipitation at stations in different parts of each division does not vary widely from the charts for the stations selected hereon. Compiled from Bulletin D, Weather Bureau, United States Department of Agriculture.



Number and Assets of Banks in United States, 1897

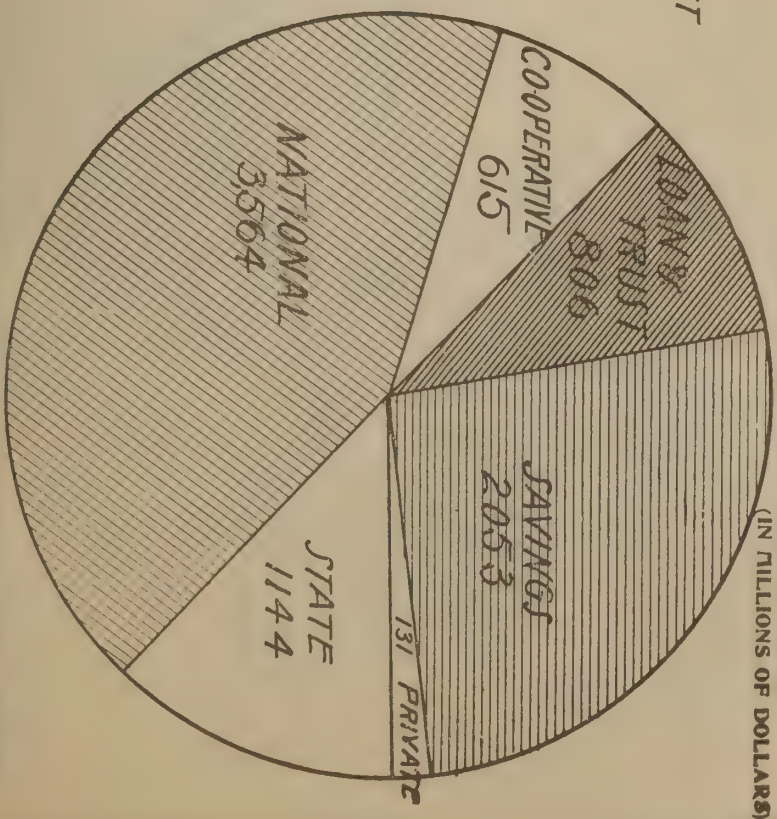
COMPILED FROM THE ORIGINAL TABLE ON ANOTHER PAGE.

Number of each class of banks



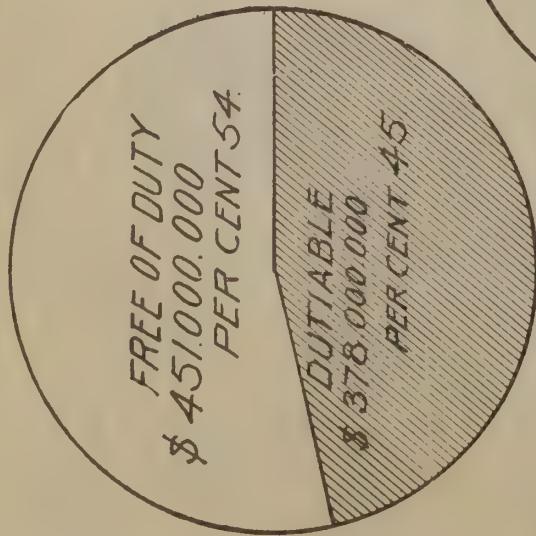
TOTAL NUMBER OF BANKS IN U.S.
15,760

Assets of each class of banks

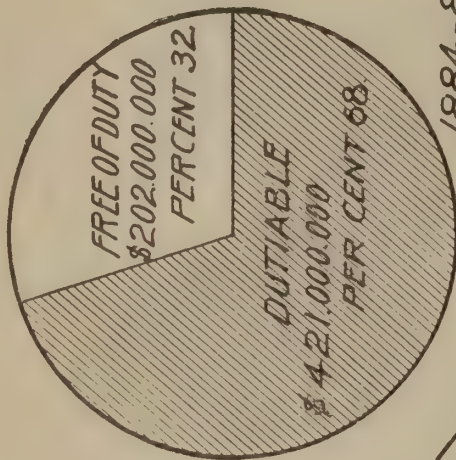


TOTAL ASSETS FOR U.S. 8,313 MILLION DOL.

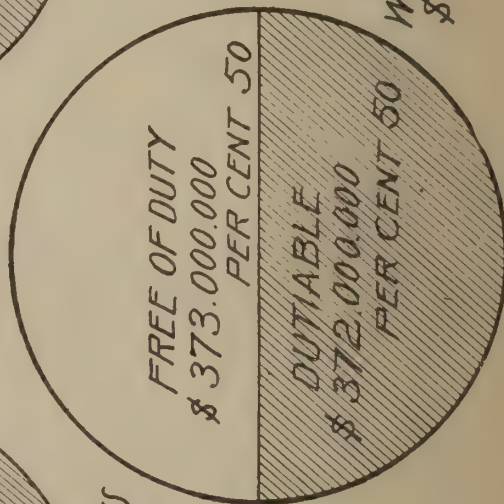
Three United States Tariffs compared, average annual importations under each tariff, average rates of duties and proportion free and dutiable.



McKINLEY '92-'93 IMPORTS
\$ 829,000,000



1884-85 IMPORTS
\$ 623,000,000



WILSON 1895-96 IMPORTS
\$ 745,000,000

Three United States Tariffs compared, showing amount and proportion of the five classes of articles imported, and the average rate of duty on each.



McKINLEY TARIFF 1892-93.

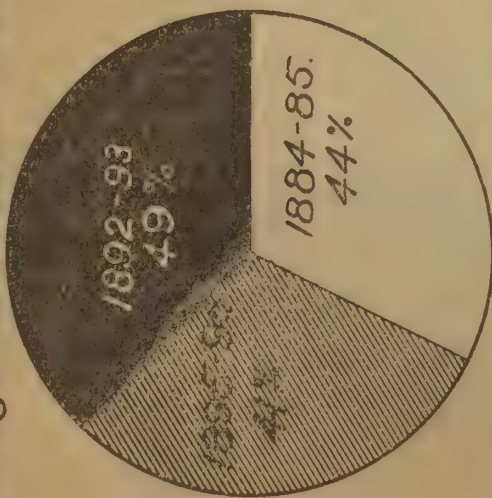


TARIFF OF 1895-96



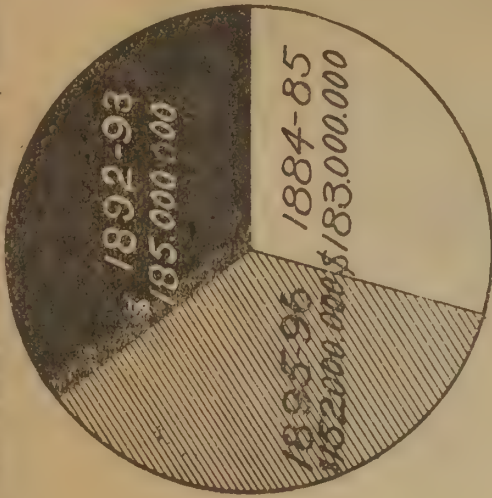
TARIFF OF 1883 FOR YEARS, 1884-85.

Average Ad valorem Duties



Three
Tariffs
Compared

Amount of Duties Paid



Under
the Three
Tariffs
Per Year

RATES OF DUTIES ON DIFFERENT CLASSES OF IMPORTS

THREE TARIFFS COMPARED.

CLASS	A. FOODS	B. RAW MATERIAL	C. PARTLY MANUFACT.	D. MANUFACTURED	E. LUXURIES
TARIFF 1884-85	51%	26.2	27.2	47.8	49.5
McKINLEY 92-93	31.2%	33.6	38.2	59.2	55.7
WILSON 95-96	34.7%	21.7	31.8	41.9	55.8

of butter and cheese are made to both western and eastern markets. The best soil is at the north and east. Wisconsin dairy farmers are noted for progressive methods. Manufactures are of great importance, including leather, machinery, beer, woodenware and a great variety of products. In the general prosperity of all lines of industry, the state is rapidly recovering from the recent depression and is fully sharing the great development of the northwest.

WYOMING, "The Equality State."

Governor, W. A. Richards,	\$2,500	Treasurer, Henry G. Hay,	\$2,000
Sec. of State, C. W. Burdick,	2,000	Ch'f Justice, A. B. Conaway,	3,000
Auditor, W. O. Owen,	2,000	Sup't Public Inst'n, Miss Estelle Reel,	2,000

Organized from parts of the surrounding states and territories, Wyoming became a distinct territory in 1868 and a state in 1890. From the fact that both men and women are allowed the right to vote, Wyoming has been termed the Equality State. The name Wyoming signifies "Broad Valleys." The general elevation of the surface is from 3,000 to 14,000 feet, giving rise to peculiar conditions of climate. Summers are cool and breezy, winters severe, but dry and healthful. Mineral resources, although but just beginning to develop, are already important. Rich gold, silver and coal mines abound, also a great variety of other minerals. The Yellowstone Park contains some of the most wonderful scenery in the United States. Manufactures have made important beginnings. Some sections are adapted to farming without irrigation, but water from the mountain streams is abundant and its application is found profitable. Grain, vegetables and fruit find good markets in the towns and mining settlements. Grazing is a leading industry and the live stock interest represents large investments. Wyoming has a territory equal to that of New England and Indiana combined. It is one of the most promising of the new states in point of resources and probable industrial and political development.

Governors' Veto.

The constitutions of the following states do not grant veto power to the governor: Delaware, North Carolina, Ohio, Rhode Island.

A two-thirds vote of the members elected to each house can repass a bill vetoed by the governor in the following states: California, Colorado, Kansas, Louisiana, Illinois, Michigan, Missouri, Nevada, New York and Pennsylvania.

A two-thirds vote of the members of each house present can repass a bill vetoed by the governor in the following states: California, Florida, Georgia, Iowa, Louisiana, Maine, Massachusetts, Minnesota, Mississippi, New Hampshire, Oregon, South Carolina, Texas, Virginia, and Wisconsin. Also in all the territories.

A two-thirds vote of the members elected to the house which originated the bill and a majority vote of the other house can repass a bill vetoed by the governor in Missouri.

A three-fifths vote of the members elected to each house can repass a bill vetoed by the governor in the following states: Maryland and Nebraska.

As the father, so the sons.



Map of Dominion of Canada.==Figures Indicate Population by Last Census, in 1891.

The Exchequer Court of the Dominion.

The Exchequer Court, also constituted under a Dominion Statute (see 50-51 Vict. Chap. 16) is presided over by one judge and has original exclusive jurisdiction in all claims, suits and actions against the Crown. It has concurrent jurisdiction in relation to revenue cases and the enforcement of penalties, in cases in which it is sought at the instance of the Attorney-General of Canada to impeach or annul any

patent of invention, or any patent case or other instrument respecting lands: cases against Crown officers for anything done or omitted to be done as such officer, and all actions or suits in which the Crown is plaintiff or petitioner.

Hon. Geo. W. Burbridge, J.C. \$6,000
L. A. Audette, Esq., Registrar 2,000

Bird Day.

The first observance of Bird Day was at Oil City, Pa., May 8, 1894. The object is to

impress the necessity of the protection of our native birds. The day is observed by schools in many States, through exercises suitable to the spirit of the occasion.

In 1853 only one ocean steamer, the first, arrived at Montreal. Forty years later, in 1893, the number was 804. The tonnage of port entries in all the Canadian ports for 1893 was 9,800,000 tons, of which Quebec handled one-tenth and Montreal one-sixth

OUR NEIGHBORS.

CANADA.

Governor General, Sir John Campbell, \$50,000.

CABINET.

Prime Minister, Wilfrid Laurier, Q.C.,	\$8,000	Minister of Public Works, Hon. Jos. Israel Tarte,	\$7,000
Minister of Commerce, Sir Richard Cartright,	7,000	Without Portfolio, Hon. R. R. Döbell.	
Secretary of State, Hon. Richard Wm. Scott, Q. C.,	7,000	Minister of Finance, Hon. William Stevens Fielding,	7,000
Minister of Justice, Sir Oliver Mowat,	7,000	Minister of Railways and Canals, Hon. A. G. Blair, Q. C.,	7,000
Minister of Marine, Hon. Louis H. Davies, Q. C.,	7,000	Minister of Interior, Hon. Clifford Sifton, Q. C.,	7,000
Minister of Defense, Hon. Frederick W. Borden,	7,000	Without Portfolio, Hon. C. A. Geof- frion, Q. C.	
Postmaster General, Hon. Wm. Mu- lock, Q. C.,	7,000		
High Commissioner in London, Sir Donald A. Smith, \$10,000.			

The Dominion of Canada is the new land of promise, and the great- est field of peaceful conquest now before the Anglo-Saxon race.

Half a continent with vast resources, as yet but roughly estimated, while to subdue it and to develop its natural wealth are only five mil- lions of people; seven-tenths of a square mile to each person. Yet there is no reason why Canada should not become in the future as wealthy and populous as its northern neighbor has become already.

The fisheries of New Foundland are the most valuable in the world. In the northwest, the great prairies are as rich as any on the con- tinent and the western half of the country is becoming one vast granary. The value of the immense forests becomes more and more apparent as the demand for lumber increases. Fur-bearing animals are found in vast numbers. The mineral resources of Canada are incalculable and but very little developed. They may be quite equal to those of the United States. Raw material for manufacturing is abundant and many great water powers, including the Canadian Niagara, are almost wholly unused.

THE PEOPLE.

A mixture of nationalities is peculiarly favorable to the develop- ment of a new country. The Canadians are a composite race. Were the sources of population united proportionately in one representative Canadian, such a man would possess a foundation, say one fourth of the early stock of English, Irish and Scotch descent, and an equal amount of the blood of the early French settlers, the remaining half of his ances- try would be divided in fairly equal proportions between Irish, English and Scotch, as a result of recent immigration, and his descent would in- clude also slight infusion from sources German, Dutch, Scandinavian, Indian and other nationalities. The typical Canadian, like the typical

Facts About Canada.

	British Columbia.	Manitoba.	New Brunswick	N. W. Territory	Nova Scotia.	Ontario.	P. E. Island.	Quebec.	Dominion.
Area, 1896	383,300	73,956	28,200	1,313,227	20,600	222,000	2,000	228,900	3,456,690
Population, Lat. est.	130,000	200,000	321,294	100,000	450,523	2,112,989	109,088	1,488,586	5,021,146
Pop. per sq. mile in 1891	3	2.4	11.0	.04	22.00	10.00	51.00	6.5	1.5
Present increase, 1881-91	98.49	144.95	0.0	73.33	2.22	9.93	0.17	9.53	11.74
Largest city	Victoria	Winnipeg	St. John	Calgary	Halifax	Toronto	Charlottetown	Montreal	Montreal
Population of largest city	16,841	25,642	39,179	3,876	38,556	181,220	11,374	216,650	216,650
No. in council or cabinet	8	5	7	7	7	8	9	8	12
Number in legislature	33	40	46	29	59	91	30	97	294
Number in leg. council					21			24	81
Number in lower house of commons									
Number in supreme court	33	40	46	29	38	91	30	73	213
Number of common schools	5		6	5	7	4	3	6	6
Salary of members of leg.	\$600	\$550	\$300	\$500	\$700	\$800	\$178	\$800	\$1,000
Members in dominion senate	3	3	10	2	10	24	4	24	81
Members in dominion house	6	7	14	4	20	92	5	65	213
Government city	Victoria	Winnipeg	Frederickton	Regina	Halifax	Toronto	Charlottetown	Quebec	Ottawa
Added to dominion (date)	1871	1870	1867	1870	1867	1867	1873	1867	
Number horses	44,521	86,735	59,773	60,976	65,047	771,838	37,392	344,290	1,470,572
Number horned cattle	126,919	230,696	204,692	231,827	324,772	1,940,673	91,675	969,312	4,120,586
Number sheep	49,163	35,838	182,941	64,920	331,492	1,021,769	147,372	730,286	2,563,780
Number swine	30,764	54,177	50,845	16,283	48,048	1,121,396	42,629	369,608	1,733,850
Number acres Gov. land, 1895,		1,000,000	7,000,000	4,700,000	150,000		45,000	7,200,000	
Price per acre " " " "	\$1.00	\$1.04	\$1.04	\$3.10	\$61	\$1.00	\$1.00	20 to 60 cts.	

Other dominion statistics may be found elsewhere in this volume.

Permanent Force and Active Militia of Canada.

PERMANENT FORCE.	MEN
Cavalry, all ranks	145
Artillery, "	340
Infantry, "	316
Total of Permanent Force	801

ACTIVE MILITIA.	
Cavalry, all ranks	2,295
Artillery, "	4,928
Engineers, "	212

ACTIVE MILITIA. (Continued.)	
Infantry, all ranks	28,962
Total Active Militia	35,497
Total Permanent Force	801
Grand Total Permanent Force and Active Militia	36,298

Supreme Court of the Dominion.

The Supreme Court, as a high Court of Appeal constituted by Dominion Statute, is composed of a Chief Justice and five Puisne Judges, and has appellate, civil and criminal jurisdiction within and throughout the Dominion of

Canada. The Judges reside at Ottawa, where the Supreme Court holds annually three sessions—the first beginning on the third Tuesday in February, the second on the first Tuesday in May, and the third on the first Tuesday in October. Sir Henry Strong, Kt., C.J. \$8,000
Hon. Henry Elzear Taschereau 7,000
Hon. John Wellington Gwynne 7,000
Robert Sedgewick

R. Cassels, Q. C., Registrar

C. H. Masters, Reporter

L. H. Coutlee, Ass't Reporter

citizen of the United States, is a product of a mixture of races likely to produce great vigor of stock.

HOW THEY ARE RULED.

The form of Canadian government is modeled after that of Great Britain. Queen Victoria is the source of authority, represented by the governor general and privy council of 14 members. Legislature is composed of two branches; a senate of 80 members appointed for life by the queen on nomination of the prime minister. The speaker's salary is \$4000, while the members receive \$1000 per session. The house of commons is the second branch, the members of which are elected by the ballot of qualified male voters for a five years' term.

The Dominion of Canada was formed July 1, 1867, by the union of Ontario, Quebec, Nova Scotia and New Brunswick and afterwards was completed by the addition of Manitoba, Northwest Territory, British Columbia and Prince Edward Island (1873).

Each province has a separate local parliament and administration under a lieutenant governor appointed by the governor-general and paid by the Dominion. Local legislation is generally left to the provinces. Counties and townships have local councils which attend to local affairs, such as schools and taxes.

The highest court is the supreme court of Canada, with a chief justice, salary \$8000, and five judges, salary \$7000, also a court of exchequer for trying cases connected with the revenue. All other courts are in the various provinces and include courts of chancery, queen's bench common pleas, error and appeal, superior and county, general sessions, division courts, besides numerous local police courts. Trial by jury prevails and the system of law is based largely upon that of England.

Education is general. There are more than 17,000 public schools and about 1,000 other high schools, for the care of which \$11,000,000 is expended.

The postal system extends to every village and town. Telegraph and telephone systems are extensive. The Dominion is well supplied with newspapers. Religious liberty prevails. Local option on the liquor traffic is the general rule.

HOW THEY TRAVEL.

Three important railway systems are the Canadian Pacific, 5,564 miles; Grand Trunk, 3,122 miles; Intercolonial 1,325 miles. This road has just been extended to Montreal. The distance from Montreal to Vancouver is 600 miles shorter than from New York to San Francisco. The railway system has done much to consolidate the Dominion. Total mileage of railways is over 16,000. With the completion of the trans-Siberian railroad, the journey from England to Japan via Canada can be made in 16 days, it is claimed.

About one-half the Dominion revenue is derived from customs. The national debt in 1895 was \$318,048,755. Exports to the United States are about two-thirds those to Great Britain, while imports from United States are nearly double those from Great Britain. The recent policy of the Dominion is to foster trade with Great Britain.

Large sums have been expended upon canals and river improvements. The St. Lawrence is now navigable for large ocean steamships 1,000 miles, to Montreal, while the new deep canal system, completion of

which is expected by 1899, opens the entire river to vessels drawing fourteen feet. There are also important canals on the Ottawa, Lake Champlain outlet, in Nova Scotia and in the rivers Assiniboin and Saskatchewan.

WHAT THEY PRODUCE.

Products of Canada include those of the mine, fisheries, forest, livestock, farm and factory. The chief countries to which exports are made are Great Britain, United States, Newfoundland, West Indies, South America, Australasia, also China, France and Germany. In 1897 the value of the gold lands was placed at \$2,810,206. The coal product in 1896 was 3,743,234 tons, an increase of 229,738 over 1895, total of metal produced 8,039,640. Total nonmetallic minerals \$8,039,640, total increase over 1895, 1,627,305. Coal, silver, gold, copper, iron, phosphates, salt, gypsum, etc, are the leading minerals.

The fisheries are the largest in the world; in 1895 the product amounted to 2,018,384,100. The cod fisheries of 1897 were disappointing and distress has resulted. Those on the Atlantic coast are best known, but the partly developed ones of the Pacific coast are asserted to be even more valuable. Great quantities of salmon are taken from the rivers and lakes.

The forest products are of great value and variety, including maple, elm, ash, cherry, beech, hickory, ironwood, pine, spruce, oak, and many others.

Manufactures are making rapid growth during recent years. They include machinery, wooden ware, cotton, woolen and leather goods, and other articles in variety. Products of flour mills lead, while those of the saw mills stand second.

Agriculture is carefully favored by the government. It is the leading industry of Canada. Five government experiment farms have been established, at Ottawa, Ont, at Nappen, N.S., at Brandon, Man., at Indian Head, N.W. Territory, and at Agassiz, B. C. An excellent system of agricultural education and farm and dairy instruction has been provided. The removal of the 90-day quarantine requirement has stimulated the cattle trade with the United States. Dairy products, especially cheese, are of a very high grade. For quality and quantity of grain, the Dominion is also remarkable. Fruit growing is becoming a great industry. The general type of farming involves the production of a variety of crops—grain, live stock, dairy products and fruit. There are cold storage accommodations at creameries on railways, at ports and on steamers, by which perishable products can be preserved at the desired temperature during the whole journey from the farm to the British market. Canada affords excellent openings for enterprise of various kinds. Expenses of living are generally low. There is still a large area of productive fertile land, especially in the western sections. The government gives a free farm of 160 acres to every male 18 years old and to females who are heads of families, on condition of residence and cultivation.

The Canadian Department of Agriculture has been accustomed to make population estimates based on immigration returns and average ratio of births and deaths. The estimate for 1891 was within 10,000 of the census for that year. Subsequent estimates have been as follows:

1892	4,899,098	1895	5,083,424
1893	4,961,528	1896	5,125,436
1894	5,021,476	1897	5,179,936

Steel whets steel.

Population and Wealth of Canadian Cities.

(Of over 9000 population.) -

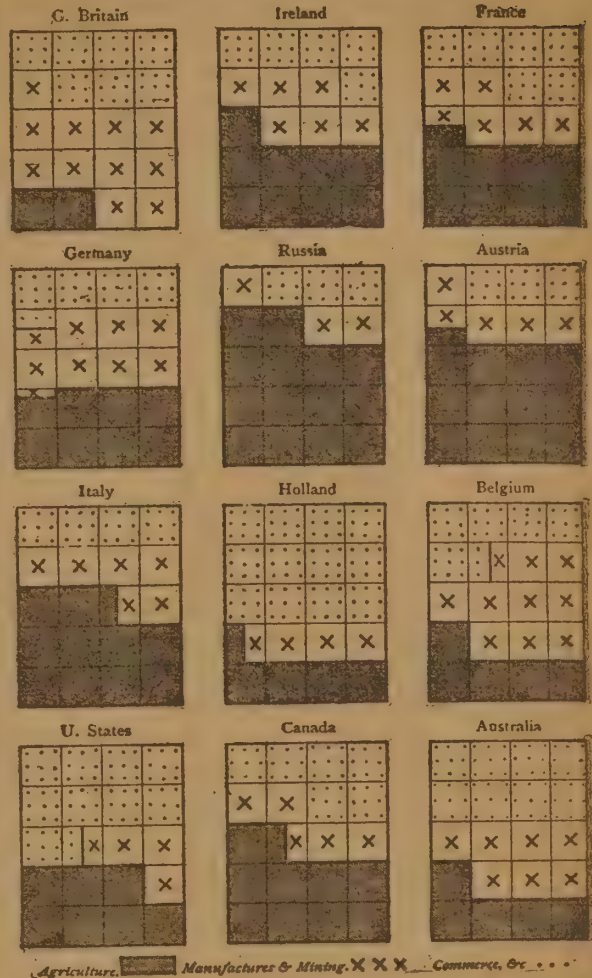
CITIES AND TOWNS.	Population.		Assessed val. 1892. In mil'ns.	Debt, 1892. In millions.
	1881.	1891.		
Montreal.....	155,237	216,650	\$128	\$19.
Toronto.....	96,196	181,220	151	17.
Hamilton.....	35,960	48,980	24	3.
Ottawa.....	31,307	44,154	18	3.
St. John, N.B....	41,353	39,179	25	3.
Halifax.....	36,100	38,556	15	2.
London.....	26,266	31,977	15	2.
Winnipeg.....	7,985	25,642	20	3.
Kingston.....	14,091	19,264	8	.8
Victoria, B.C....	5,925	16,841	19	1.
Vancouver, B.C..	**	13,685	17	2.
Brantford.....	9,616	12,753	6	.7
Hull.....	6,890	11,265	2	.3
Guelph.....	9,890	10,539	3	.4
St. Thomas.....	8,367	10,370	4	.3
Windsor.....	6,561	10,322	5	.4
Sherbrooke.....	7,227	10,110	4	.2
Belleville.....	9,516	9,914	4	.4
Peterboro.....	6,812	9,717	4	.3
Ste. Cnégonde..	4,849	9,293	3	.5
St. Catharines..	9,631	9,170	5	.9
Chatham, Ont....	7,873	9,052	4	.3

** Not in existence. a 1st Jan., 1892.

Canada's Home Trade.

Millions of dollars.

	1871	1894
Agriculture.....	144	274
Manufacture.....	221	470
Minerals.....	5	24
Forestry.....	58	82
Fisheries.....	10	19
Imports.....	97	115

OCCUPATIONS OF MANKIND.

[From Mulhall.]

Governors General of Canada.

The following is a list of the Governors General of Canada since Confederation, with the dates of their respective appointments:

NAME.	Date of Appointment.	Date of Assumption of Office.
The Rt. Hon. Viscount Monck, G.C.M.G.....	June 1, 1867	July 1, 1867
The Rt. Hon. Lord Lisgar, G.C.M.G. (Sir John Young).....	Dec. 29, 1868	Feb. 2, 1869
The Rt. Hon. the Earl of Dufferin, K.P., K.C.B., G.C.M.G.....	May 22, 1872	June 25, 1872
The Rt. Hon. the Marquis of Lorne, K. T., G.C.M.G., P. C., etc.	Oct. 5, 1878	Nov. 25, 1878
The Most Hon. the Marquis of Lansdowne, G.C.M.G., etc.....	Aug. 18, 1883	Oct. 23, 1883
The Rt. Hon. Lord Stanley of Preston,* G.C.B.....	May 1, 1888	June 11, 1888
The Rt. Hon. the Earl of Aberdeen, K.T., G.C.M.G.....	May 22, 1893	Sept. 18, 1893

* Succeeded to the Earldom of Derby on the death of his brother, April 21, 1893.

Comparing the United States and Canada, 47 per cent of Canadians are farmers and 34 per cent in the United States, yet the production of food per inhabitant is about one-fourth larger in the United States, probably because farm machinery is better and more generally used in the latter country.

Work makes the workman.

THE CANADIAN PROVINCES.

British Columbia.—Formerly a part of the territory of the Hudson Bay company, the area was formed into two colonies which were united in 1866. British Columbia is a vast undeveloped country with an area equal to that of Texas and New Mexico together. The climate is milder and more even than that of the other parts of Canada. In the southeastern part snow seldom falls. Spring begins in February west of the Cascade mountains. Valuable minerals of all kinds are more abundant than in any other province. The lumber resources are exhaustless and the fisheries are of very great value. Much of the country is too rough for agriculture, but thousands of square miles are available. Irrigation is extending in the eastern section, which contains open plains well suited for stock and grain raising. Rain is abundant on the coast, and general farming is practiced. Land can be pre-empted at \$1 per acre and can also be had by purchase or by lease. British Columbia is a province but little developed as yet, but likely in future to become one of the most important and prosperous in the Dominion. Lieutenant-Governor, Hon. Edgar Dewdney, \$9,000.

Northwest Territory.—This vast undeveloped region includes much of the territory formerly governed by the Hudson Bay company. In 1882 it was divided into the districts of Assiniboin, Alberta, Athabasca and Saskatchewan. The lieutenant-governor has an advisory council of four members. The legislature has only one branch, numbering 25 representatives. The country includes more than one-third the entire area of the Dominion. Its resources are not definitely ascertained, but it is known that much of the great plains section is well adapted for grain raising and stock farming. Its conditions in general are like those of Manitoba. The provisional districts previously mentioned are being settled quite rapidly. Coal, silver, gold, iron, lead, acid and copper are found and the mining feature will doubtless increase as the country becomes more fully explored. The immense gold areas discovered in 1897 along the Klondike and other tributaries of the Yukon are largely within British territory near the Alaskan border line and indications point to one of the greatest gold discoveries ever made. This whole region, including Alaska, is doubtless very rich in the precious metal. Lieutenant-Governor, Hon. Chas. H. Mackintosh, \$7,000.

Manitoba.—The early name of Manitoba was the Red River Settlement. Education is controlled by a board of Protestant and Catholic members. The area is about that of Ohio and Maine together. The climate is less severe than is commonly supposed. Elevation being less than that of the northern states of the United States, the general temperature is about the same. Winters are bright and dry, with light snowfall, but with occasional blizzards. Plowing begins in April. Much of the country is prairie land, of which the soil, a rich, deep loam, is especially suitable for the wheat crop. Stock raising is very successful. Small fruits, roots, vegetables and flax are well adapted to the country. In 1895, new land to the extent of 99,835 acres was broken up. The total grain crop amounted to 61,366,472 bushels and the root crop was 6,327,845. There are 192,000 cattle, 90,000 horses, 59,000 pigs and 36,000 sheep, and 2000 poultry in the province; an excellent showing for the labor of 25,000 farmers. Lieutenant-Governor, Hon. J. C. Patterson, \$10,000.

A stumble may prevent a fall.

Financial Condition of Canada.

This table shows the debt and assets and the receipts and expenditures of the Dominion, from its formation in 1867, to 1897, at periods of ten years to 1887, and each year from 1893.

In millions of dollars.

	1897.	1896.	1895.	1894.	1893.	1887.	1877.	1867.
Total debt.....	332.4	325.7	318.0	308.3	300.0	273.2	174.7	93.0
Total assets.....	71.1	67.2	65.0	66.2	58.4	45.9	41.4	17.3
Net debt.....	261.3	258.3	253.0	246.2	241.7	227.3	133.2	75.7
Interest paid.....	10.6	10.5	10.5	10.2	9.8	9.7	6.8	.....
Interest received.....	1.2	1.4	1.3	1.2	1.2	1.0	.7	.....
Taxes, including customs.....	28.6	27.8	27.8	25.4	27.6	28.2	17.8	11.7
Various sources, receipts.....	9.2	8.9	8.5	8.8	8.8	7.7	4.5	2.0
Total receipts.....	37.8	36.6	36.6	34.0	36.4	35.9	23.4	13.7
Interest on debt, etc.....	10.8	10.8	10.7	10.4	10.0	10.0	7.2	4.9
Subsidies.....	2.2	2.2	4.2	4.3	4.2	4.2	3.5	2.8
Other expenses.....	23.3	23.3	23.2	23.0	22.9	22.4	12.8	5.9
Expenditures, total.....	38.3	36.9	38.1	37.6	36.8	35.7	23.5	13.5

Canadian Trade.

Commerce of Canada is chiefly with the United States and Great Britain. For the five years ending with 1893 the average proportion for each year was as follows:

In millions of dollars.

	Imp. from.	Exp. to.	Total.	Ratio.
Great Britain..	45	55	100	44.4
United States..	55	45	100	44.4
Other nations.	20	5	25	11.2

Collecting Canada's Income.

The cost of collecting customs revenue has been reduced very considerably since the first years of Confederation. In 1868, for every \$100 of duty collected, \$5.41 was expended, as compared with \$5.13 for every \$100 in 1895. The large area of the Dominion, the extent of its frontiers, and the number of ports of entry it is necessary to keep up being considered, the cost of collection is moderate. In the United States, in 1895, it was 4.42 per cent, and in the United Kingdom 4.15 per cent.

By adding together the amounts received from customs and excise duties on spirits, wine, beer and cider, malt liquor, malt, tobacco, snuff, cigars and cigarettes during 28 years, we have the sum of \$212,157,000. The total amount expended by the Federal Government on the construction of railways, canals, public buildings, including the payments on account of the Canadian Pacific Railway, the Northwest Territories, and debts allowed to provinces, is \$200,143,171. The duties collected from liquor and tobacco have, therefore, paid for the cost of the Intercolonial and connecting railways, the contribution of the Federal Government in aid of the Canadian Pacific Railway, the purchase and subsequent cost of the Northwest Territories, including Manitoba, the public buildings at Ottawa, all the canals, including the Sault Ste. Marie, and all the postoffices and other

public buildings erected all over the Dominion since Confederation.

Military Classes.

The Militia of Canada consists of all the male inhabitants of Canada of the age of 18 years or upwards and under 60, not exempted or disqualified by law, this population being divided into four classes, as follows:

The first class comprises those aged 18 or upwards and under 30, being unmarried or widowers without children. The second class comprises those between the ages of 30 and 45, being unmarried or widowers without children. The third class comprises those between 18 and 45, being married or widowers with children. The fourth class comprises those between 45 and 60. The following persons are exempt from enrollment and active service at any time: Judges, clergymen and ministers of all religious denominations, professors in colleges and teachers in religious orders, the wardens and officials in all penitentiaries and lunatic asylums, persons physically disabled, and any person being the only son of a widow and her only support. Certain other persons are exempt from service except in case of war.

Legislature and Voting.

In all the provinces there is manhood suffrage, limited by residence and citizenship, but in P. E. Island 15 are elected on a special real estate qualification. In all the provinces the duration of the assembly is four years, unless sooner dissolved. Sessions are annual. In all of the provinces the speakers of the assemblies are elected by the members. In both houses members are paid. Members require no property qualification. The legislative powers of the legislatures are defined by the British North America Act of 1867. Widows and unmarried women, when taxed, can vote at municipal elections in Ontario and the Northwest Territories; in Manitoba and British Columbia, all women who are taxed in their own right can vote at such elections.

Ontario.—Champlain explored the country around Lake Ontario in 1615. The section became a part of the British possessions and was made a colony in 1791. Schools number 5400, besides over 100 high schools, also four universities. Ontario is the most populous of the provinces and contains about two-fifths the inhabitants of the Dominion. Its natural resources are extensive. Minerals include iron, silver, copper and nickel. In 1897, a powerful company was granted exclusive right for a term of years to explore and work 64,000 acres of mineral lands of the province. It is fast becoming an important manufacturing district. The lumber trade is important. Climate of the southern sections is like that of similar localities in the United States, while the northern sections have short but warm summers and a dry, cold winter. Agriculture is assisted by a model farm and an experimental college. Grain, hay and root crops are specialties, while hemp, flax, tobacco and sugar beets can be successfully grown. Ontario is also becoming an important live stock and dairy section. Lieutenant-Governor, Hon. G. A. Kirkpatrick, \$10,000.

Quebec.—Containing about the same area as Ontario, Quebec is four times as large as England. It is the most French of the provinces and both the French and English language are spoken. The first permanent settlement was made by Cartier, near the city of Quebec. The surface of the country is varied and picturesque. Among the most important and beautiful of rivers is the St. Lawrence, which with its tributaries drains the entire province. Summer climate is pleasant; winters cold, dry and brilliant, with snow from December to April. Mineral productions include gold, silver, copper, iron and phosphate. In manufactures Quebec ranks second among the provinces. Montreal is the commercial center of Canada; principal port of entry, chief railway center and greatest manufacturing district. Fisheries and lumber industry are important. The soil is for the most part rich and well suited to general farming; grain, hay, root crops and live stock are leading products. Hemp, flax and tobacco flourish in some sections, also apples and plums. Grapes ripen in the southern portion of the province. Production of butter and cheese is rapidly extending with the advent of the factory system. Price of farms varies from \$20 to \$30 per acre with improvements. The section called the Eastern townships is the most English part of the province. It is a rich section well suited for dairying, live stock and fruit growing. There is still a large amount of government land in the province held at 20 to 60c per acre. Quebec needs more people and more capital to fully develop its great resources. Lieutenant-Governor, Hon. J. A. Chapleau, \$10,000.

THE MARITIME PROVINCES.

Nova Scotia.—Visited by Cabot in 1497, the country was settled and claimed by the French, but ceded to Great Britain in 1713. Schools number 2000 and are controlled by a council of public instruction. Nova Scotia has a great variety and extent of resources. Minerals include great area of coal land, which is being rapidly developed, also gold, iron, gypsum and other minerals. The forest wealth is great. Fisheries are celebrated for quantity and quality. Manufactures, favored by cheap fuel and abundant water power, are increasing rapidly. Nova Scotia owns more shipping in proportion to population than does

The workman is known by his work.

any other country. The soil is very fertile—grain, root crops, hay and apples are grown with especial success. Public lands are sold at \$40 per 100 acres. Live stock raising is a feature of farming and the sale of fat cattle an important source of income. Apples from the Annapolis valley are favorites in American and English markets. Lieutenant-Governor, Hon. Malachy B. Daly, \$9,000.

Prince Edward Island.—The French called the island Isle of St John. After its acquisition by Great Britain (1758) it was attached to Nova Scotia and in 1799 the present title was given, but independent government was not conceded until 1851. Its area is about half that of the state of Ohio. Prince Edward is the smallest of the provinces but the most densely settled. Climate is somewhat like that of New England, but with cooler summers. The winter climate is softened by the influence of the ocean. Agriculture is the chief interest of the people. The surface is generally level, with very fertile soil, well watered with numerous springs and rivers. All kinds of grain and vegetables succeed well. The island is famous for its large potato crops. Mussel-mud obtained from the bays and rivers is used to fertilize the land. The live stock has a high reputation. The provincial governments maintain a stock farm for the raising and distribution of thoroughbred stock. Lieutenant-Governor, Hon. Geo. W. Howland, \$7,000.

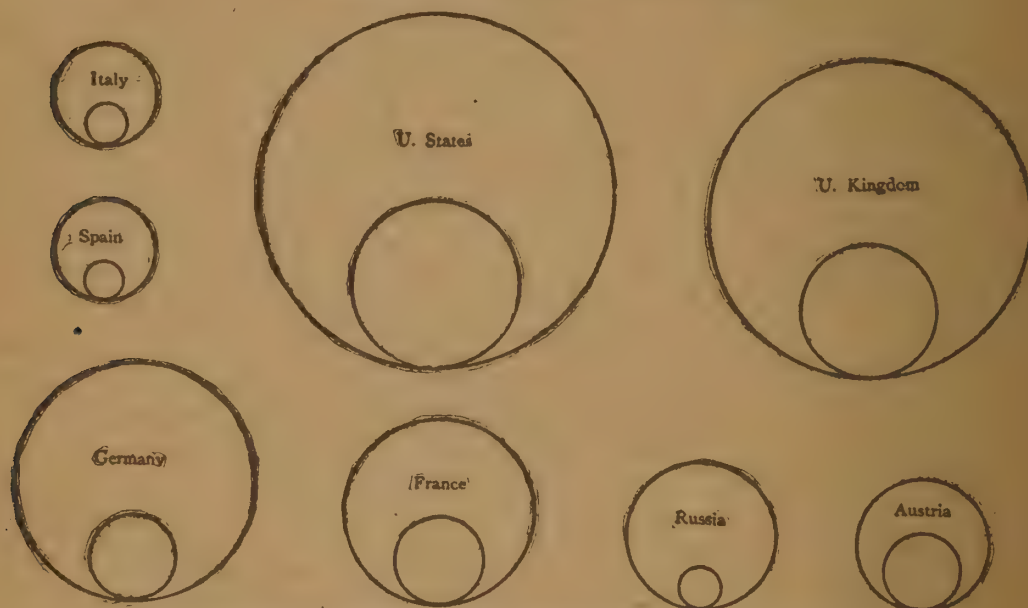
New Brunswick.—Settled by the French in 1639, New Brunswick was a part of Arcadia until 1713, when it became a British possession and in 1784 a separate colony. New Brunswick ranks third in density of population. Its area is about equal to that of the state of South Carolina. There are a chief justice, an equity judge, 5 pension judges and five county court judges. Education is provided for by 100 schools; school age, 5 to 20 years. Mineral resources include gypsum, manganese, coal and granite. Fisheries are important, and game is abundant. Manufactures of cotton, woolen, etc., are increasing. The country is well adapted to agriculture. Forest products are large. Increasing attention is being given to live stock. Grain, root crops, vegetables and fruit abound. Free grants of 100 acres of land can be had on condition of cultivation and making certain improvements. Millions of acres of vacant land remain. Lieutenant-Governor, Hon. Abner Reed McClelan, \$6,000.

Newfoundland.—This section is a crown colony and does not belong to the Dominion. Its present constitution went into force in 1855, but it has been a British possession since 1713. Newfoundland prides itself upon being the oldest of the British colonies. The area is 40,260 square miles, or about that of the state of Ohio. Population in 1891, 197,835. St. Johns, the largest city, has about 30,000 inhabitants. Governor, Sir H. H. Murray, salary \$12,500. There is an executive council of 7, a legislative council of 15, an assembly of 36, a chief justice, 2 assistant justices, 3 district court judges and 22 magistrates. The colony includes a part of Labrador. Copper is the leading mineral product. A large proportion of the people are engaged in fisheries. The cod fisheries of the Great Banks are well known. Fish, oil, sealskins, and copper are the chief exports. Potatoes, turnips and other root crops, hay, oats and barley are grown. The attempt is being made to increase the food supply by the encouragement of farming. The colony has passed through a long period of business depression caused by a

A yeoman on his legs is higher than a prince upon his knees.

destructive fire and by failure of important firms, but commerce and industry are now recovering their former position. Important discoveries of coal were made in 1897.

STEAM-POWER IN 1860 AND IN 1895.



The large circles indicate the present steam-power, the small ones that of 1860.

[From Mulhall.]

Canadian Homesteads.

The Homestead law of 1870 gives free farms of 200 acres to settlers in the Northwest, on condition of building a log hut and bringing 30 acres into cultivation. Public lands are also sold at four shillings, or about \$1 per acre. Railway land sales average about \$3.50 per acre. There are 59 million farms in Canada, each farm averaging about \$450 in produce per year. Canadian farmers crop about twenty millions of acres of land. About one-half the area is devoted to grain, oats, barley and wheat in the order given. Nearly one-third of the land is in mowing, and the remaining sixth is taken with miscellaneous crops. The strength of Canada lies in the domestic rather than the foreign trade. The internal commerce has doubled since 1871. In 1894 it amounted to over one billion dollars.

Growth of Canadian Railroads.

Although the railroads of the Dominion have been rapidly extended and have contributed much to the development of the country, they have been less profitable than those of the United States. The chief lines have averaged a profit of 1.57 per cent on the capital, as against 3.22 per cent in the United States. As the country becomes more thickly settled, railroads are likely to prosper in proportion.

In 1830, the real estate of Canada was estimated at about \$300 millions of dollars, including the value of 27 million of acres unoccupied land. The present value of real estate is 875 millions dollars.

One country, one constitution, one destiny.—Webster.

NEIGHBORS TO THE SOUTH OF US.

MEXICO.

Our nearest neighbor to the south, the republic of Mexico, is one of the richest and most varied regions in the world. For three hundred years after the conquest of the natives by Cortez the country was a harshly ruled dependency of Spain, but during the past three-fourths of a century Mexico has enjoyed a national existence. As a result of the war of 1848 with the United States, large portions of the northern part of the country were lost. The situation of Mexico between two oceans gives an extensive seacoast. The surface is largely an elevated plain containing mountains and volcanic peaks. Rivers are mostly short and the lakes small. Climate is hot and unhealthful on the coast but cool and pleasant in the interior. Government is much like that of the United States, but the president is sometimes elected to more than two terms. Voters must be 25 years of age. Congress has two sessions per year. Each state has its own constitution, government, legislature and laws. Education is compulsory, although the requirement is not well enforced. The church is independent of the state. About five millions of dollars per year are expended upon schools. The judicial system consists of a supreme court with 15 judges serving six years, nine circuit courts and 38 district courts. The army numbers about 28,000 men. About one-half the revenue is derived from tariff, the remainder from internal taxation and other sources. Revenue and expenditure for 1879 were each estimated at about \$50,000,000. The national debt absorbs nearly one-half of the revenue and its amount equals about \$15 per inhabitant. Mexico's large extent of territory and great range of climate gives rise to a corresponding variety of products and resources. On the tropical coast land vegetation is tropical; sugar cane, bananas, cocoanuts, oranges and precious woods, and medicinal plants flourish luxuriously. At the altitude of half a mile, as the land slopes upward toward the interior, fruits and trees of the temperate zone appear, while upon the highest plateaus the vegetation is that of a cold climate. Minerals include gold, silver, mercury, coal, lead and copper. Silver is especially abundant and is now being more fully developed. Manufactures include woolen and cotton goods, sugar, flour, iron work, tobacco and pottery, and are quite rapidly extending. Commerce is carried on through a score of leading seaports and the several important railway lines. Amount of trade is by far the greatest with the United States, followed by Great Britain, France and Germany. Live stock raising is a leading industry, and the value of the cattle ranches is at least half a billion dollars. The annual cotton crop amounts to \$10,000,000, the

'Tis sweet and glorious to die for one's country.—Horace.

production of coffee to one-half that sum and of tobacco to about one-fourth the value of the cotton. Corn, beans, rice, maguey, sugar, cocoa, wheat and barley are grown extensively. The principal fiber plants are agave, banana, ramie, heniquen. Large areas of public land are held for sale at low prices (price for 1898, from 50c to \$5.60 per hectare of 2.47 acres), and very favorable concessions of various kinds are often granted to colonies and new industrial enterprises.

CENTRAL AMERICA.

At first a dependency of Spain, Central America is now divided into five republics; Guatemala, Salvador, Honduras, Nicaragua, Costa Rica. The region revolted from Spain in 1821, and the separate republics were not established until 1839. In 1896, the republics of Salvador, Honduras and Nicaragua united as the Republics of Central America, with a view to union in the management of the foreign affairs. There is a yearly convention for this purpose, composed of nine delegates, three from each republic. In '97 this convention met at San Salvador. The governments of the Central American republics are quite frequently disturbed by revolutions. The region is one of great resources in natural products. In the elevated portions, the climate is mild and healthy. The total area is about 175,865, and the population about 3,000,000, about one-fourth of whom belong to the white races. The trade of Mexico and the Central American Republics naturally gravitates toward the United States. In 1895 Mexico bought nearly as much from this country as from Great Britain, France and Germany combined, while in 1896 the amount purchased was \$14,000,000 more than during the previous year. Exports of the United States to Guatemala and to Costa Rica are gaining upon those of other nations. Even the colony of British Honduras has adopted the United States gold dollar as its monetary unit. In course of time the increase of trade and immigration is likely to bring all these nearest southern neighbors into more intimate relations with the United States.

Costa Rica.—The most southern state of Central America is Costa Rica. Its area is rather more than half that of Ohio. About one-third of the people are Indian. Minerals abound but have not been mined to any great extent. Railway and telegraph lines have been constructed to a limited extent. Coffee culture is the leading agricultural specialty and the planters are generally prosperous. In recent years great numbers of the people have become coffee growers upon a small scale. Bananas are also an important crop.

Guatemala.—Vigorous efforts are being made to develop the resources of Guatemala. Railroads and immigration are encouraged. There are 3000 miles of telegraph wire. Education is compulsory. The climate in the higher regions is delightful. Coffee has become the leading specialty, about 50,000,000 lbs are exported. Sugar cane, tobacco, corn and bananas are leading crops. Manufacturers are fairly prosperous. Live stock is grown extensively.

Honduras.—The middle state of Central America is Honduras. The area exceeds that of Ohio. Education is compulsory. A large proportion of the people are of Indian descent. National finances are

United we stand, divided we fall.—Morris.

rather unprosperous. Foreign capitalists have begun to develop the large stores of mineral wealth. The chief products are mahogany, fruit, coffee, tobacco and live stock. In 1877, large tracts of land were bought by syndicates for production of coffee and cocoa.

Salvador.—The form of government is republican. In local governments, states or departments are administered by a governor and alternates, and towns are ruled by an alcalde, a syndic and two or more magistrates elected by the people. About 95 per cent of the people are Indians and half-breeds. Several hundred public schools are maintained. There is a coast line of 139 miles. Commerce is chiefly with the United States, Great Britain, France and Germany. The chief products are coffee, indigo, sugar, medicinal plants, woods and minerals.

Nicaragua.—The eastern part of the country was discovered by Columbus in 1503. The government is republican. Congress meets once in two years. Judicial power is vested in a supreme court of two chambers and also minor courts. Nicaragua is the largest state of Central America, with an area equal to Ohio and Massachusetts. Much is being done to improve the system of education. The Roman Catholic religion is the legalized form of worship. The army and reserve amount to 6200 men. There is one line of railway. The products are varied. Cattle raising is a leading industry and coffee is a leading farm crop. Precious woods, sugar, indigo and cocoa are exported. Potatoes and corn thrive on the uplands where, because of the elevation, the climate is cooler. Recent discoveries have been made of valuable gold mines.

SOUTH AMERICA.

Argentine Republic.—This country is one of the most progressive in South America. In size, climate and resources it may be compared to France, and it is no doubt destined to become one of the great nations of the world. The government is nearly like that of the United States. The president (salary \$36,000) is commander-in-chief of the troops and appoints to all civil, military and judicial offices. Both president and vice president must be Roman Catholic, natives of the country, and cannot be chosen for a second term. The constitution is nearly like that of the United States. There is a supreme court and both national and state judicial systems. Cabinet members receive \$16,800 per year. Great attention is given to public education. Revenue is largely derived from tariff. Immigration from Italy, Spain and France is rapidly filling the country. A Jewish colony controls 330,000 acres. Minerals include copper, silver, coal, etc. Manufactures are but little developed. The general surface of the country is level and well adapted for agriculture. Argentine has become one of the important wheat exporting countries and the government is actively encouraging the live stock and dairy industries. The country contains about 18,000,000 cattle and 80,000,000 sheep. On account of the thinly settled condition of the country, stock raising is the most available means of development. Being a new country in many respects, Argentine offers numerous opportunities to the fortune seeker, specially in the line of agricultural

Our country is wherever we are well off.—Milton.

Tonnage Entered and Cleared in the Foreign Trade of the United States.

The tonnage movement in the foreign trade of United States, showing in detail the participation of the American Republics and in gross that of all other nationalities or flags, on an average for the five years of 1892-1896, will be found in the table of tonnage herewith.

COUNTRIES.	Total entered.	Total cleared.
	Tons.	Tons.
Mexico.....	3,001	3,219
Costa Rica.....		15
Hayti.....	708	497
Honduras.....	111	92
Nicaragua.....	40,238	40,371
Argentina.....	1,076	1,620
Brazil.....	1,885	2,468
Chile.....	11,091	11,535
Colombia.....	259	238
Ecuador.....	1,037	1,037
Peru.....	335	
Uruguay.....		400
Venezuela.....	34	131
Total.....	59,775	61,623
United States..	4,630,494	4,702,651
American Republics.	4,690,269	4,764,274
Foreign.....	15,483,531	15,707,446
Aggregate..	20,173,800	20,471,720

The cream of the traffic was skimmed by foreign vessels, chiefly European. Of the tonnage bringing cargoes 76.46 per cent was foreign and 23.54 per cent American. Of the tonnage taking cargoes abroad 79.36 per cent was foreign and 20.64 per cent American.

The proportion of tonnage of each description of vessel in the trade, coming with cargo or for cargo, is exhibited in the table following:

Value of the Foreign Trade of United States with other American Republics and percentage carried in American vessels, fiscal year ending June 30, 1896.

The details of this commerce, with the participation in carriage of American vessels, are given in the following statement:

COUNTRIES.	Exports. Thous'nds	Percent.	Imports. Thous'nds	Percent.	Total. Thous'nds	Percent.
Hayti.....	\$4,423	25	\$1,697	23	\$6,121	25
Santo Domingo.....	1,064	90	2,895	78	3,959	81
Mexico.....	8,811	68	13,886	46	22,697	50
Guatemala.....	3,158	80	2,080	84	5,238	81
Costa Rica.....	1,198	14	3,835	8	5,033	10
Salvador.....	1,608	90	1,166	90	2,775	90
Nicaragua.....	1,269	50	1,268	20	2,537	35
Honduras.....	610	70	776	62	1,387	66
Brazil.....	14,258	15	71,060	3	85,318	5
Argentina.....	5,979	10	9,313	40	15,292	29
Venezuela.....	3,838	85	9,649	92	13,488	90
Colombia.....	3,382	44	4,970	16	8,352	27
Chile.....	3,431	11	4,709	20	8,140	16
Uruguay.....	1,481	15	3,242	46	4,723	36
Peru.....	999	46	712	43	1,712	45
Ecuador.....	689	82	763	91	1,453	87
Bolivia.....	21	5			21	5
Paraguay.....						
Total.....	56,226	40	132,028	24	188,254	28

Commerce with Our Neighbors to the South.

The Merchant Marine of the American Republics, 1896-7.

FLAG.	No. steamers.	No. sailing vessels	Tons.
United States...	477	3,881	2,120,174
Brazil.....	314	320	212,824
Chile.....	36	142	118,483
Argentina.....	61	154	81,388
Uruguay.....	19	51	21,834
Peru.....	6	54	28,696
Mexico.....	12	51	13,980
Nicaragua.....	2	20	12,611
Venezuela.....	5	16	4,849
Hayti.....	4	17	5,706
Colombia.....	1	7	2,651
Costa Rica.....	2	2	1,069
Santo Domingo.	2	7	1,746
Paraguay.....	1		282
Honduras.....		2	199
Guatemala.....		16	4,351
Bolivia.....		3	2,244
Salvador.....		4	1,109
Ecuador.....		1	386
Total.....	942	4,748	2,634,562
World's total.	11,155	29,348	26,225,156

The totals of tonnage in the foregoing table are for the vessels in both the seagoing and coasting trades. The coasting trade employs the greater tonnage. For instance, in 1896 United States tonnage in the foreign trade was only 829,833 tons, or 39 per cent of the whole.

Of the total tonnage of the American Republics, United States has about three-fourths; of the tonnage of the world, the American Republics have about one-tenth, and the United States about one-twelfth—seagoing.

and mineral developments. In the lately acquired territory in Patagonia, much of the country has hardly been explored.

Bolivia.—From its situation largely among the mountains and high plateaus of the central Andes, Bolivia may be compared in some respects to the Rocky mountain states of northern America. The government has been rather unsettled and disturbed by the frequent revolutions which hinder its development. Considerable portions of its foreign territory have been seized by Chile and Brazil. Education is rather backward. Government is republican. The country is divided into nine departments, 52 provinces, 374 cantons, ruled respectively by prefects, sub-prefects, corregidores. The capital of each province has a municipal council. The chief industries are mining and agriculture. Silver has been mined for centuries, and the supply is believed to be still very large. Gold, copper, lead and tin are found. The product of silver for 1896 was estimated at 22,000,000 ounces. Wheat, corn, barley, beans and potatoes are grown for local use, while coffee, sugar, fruits and herbs are largely exported. La Paz, the largest city, is located more than two miles above sea level. Doubtless the resources of Bolivia are great, and there is at present some prospect of their development through the aid of foreign capital and enterprise.

Brazil.—The largest of the South American republics is Brazil, the area being about equal to that of the United States. Its climate and products are largely those of the tropics, although the most southern of the provinces extend into the south temperate zone. The surface of the country rises toward the interior and the climate is not so hot in the elevated regions. The people of the interior are largely Indians and half-breeds, while the inhabitants of the commercial cities are mostly of European descent. Portuguese is the prevailing language, the country having been first a dependency of Portugal, then of Holland, and at last, in 1822, an independent empire until 1889, when the republican form of government was instituted. Rio Janeiro, the capital, is the most important commercial city of South America and has one of the best harbors in the world. Coffee, sugar and rubber are important exports. Brazil is chiefly a farming country. Coffee is the leading product, of which the annual yield is about 8,000,000 bags. Sugar production is large and in the southern provinces much live stock is raised. Forests are of great value and many productive mines exist of gold and other metals, also diamonds. Cotton mills and other manufactures are increasing. Commerce is extensive and is carried on mostly with Great Britain, United States, Germany and France. Paper money is the prevailing form of currency. Religious tolerance prevails. Since the abolition of slavery in 1888 the labor problem has occasioned some perplexity. Immigration is being actively encouraged by the government.

Paraguay.—With an area equal to that of England, Paraguay has a population less than that of Massachusetts. The civil code of the Argentine republic is in force. The established religion is Catholic, but others are tolerated. Primary education is compulsory. Commerce is carried on principally through the ports of Uruguay and Argentine and by way of Brazil. Among the articles of export are mate or Paraguay tea, of which over a million dollars' worth was sold in 1894, tobacco, timber and hides. Only the beginnings of manufactures exist. Minerals of various kinds are found. Fish and game are abundant. Cattle raising

There are no points of the compass on the chart of true patriotism.—Winthrop.

is one of the principal industries and about one million head are produced annually. All kinds of semi-tropical and temperate climate fruits can be grown. Oranges are becoming an important crop, amounting in 1894 to a quarter of a million dollars. Medicinal herbs abound. Only a small proportion of the arable land is under cultivation.

Chile.—The Chileans are very enterprising and progressive and have been termed the “Yankees” of South America. Government resembles that of the United States in its general form. A retiring president is not eligible for re-election. Education is at state expense. Revenue derived mainly from tariff. The number of the regular army is limited by law to 9000 men. Chile is located in the western slope of the Andes, its greatest length being 2200 miles, but its average width only 100 miles. The mountains contain mines of gold, silver, copper, coal, iron and precious stones. In the valleys are large areas of rich agricultural land. The climate is temperate and moist; well suited to agriculture, in which pursuit about one-half the people are engaged. Wheat and other grains, also fruit and vegetables, are produced in large quantities. About 20,000,000 bushels of wheat are grown per year and nearly half that quantity of other grains. Agricultural land constitutes about one-fourth the area of the country. The nitrate of soda territory is very rich and produces yearly more than a million tons of that important substance. Commerce with the United States is increasing. Manufactures, which are more fully developed than in the other parts of South America, include a variety of products.

Colombia.—Situated in the most northwestern part of South America and with a great variety of surface, Colombia possesses a corresponding range of climate and productions. There are three great ranges of the Andes and sections of elevated table lands, which latter are the most densely peopled regions. Climate of the valley is tropical, that of the tablelands temperate, while the higher mountains are always capped with snow. The government is republican. A system of free education exists and the people rank high among South Americans in point of literary and scientific culture. Religious toleration is the rule. Minerals include gold, silver, platinum, copper, iron, lead, coal and precious stones. Gold is found in all the provinces. The agricultural possibilities of the country are only partly developed. There are great areas of unimproved but fertile soil. Coffee growing is becoming a leading industry. Tobacco, cocoa, sugar, iron, wheat and rubber are important productions. Live stock are numerous. The construction of the Panama canal is an enterprise of great importance to the development of Colombia and the franchise to the canal company has been extended to 1903.

Ecuador.—The republic of Ecuador was originally a part of the republic of Colombia but became separate in 1830. A peculiar feature of the government is the election of the vice president two years after that of the president, so that the former official serves under two succeeding presidents. The congress has power to pass a measure over the president's veto. Ecuador is a tropical country, but the upland plains have a mild and delightful climate. Roman Catholicism is the authorized religion. Only a few miles of railway exist. Revenue is not sufficient to meet expenses and finances are in a serious condition. The national debt has been repeatedly scaled down and the payment of interest has been

irregular. The plains and valleys of the country are productive of various staples, including cocoa, coffee, sugar, rice and peruvian bark. Mineral wealth includes gold, silver, coal, petroleum, etc., but hardly a beginning has been made in utilizing the varied resources of all descriptions.

Peru.—Located on the Pacific coast between Ecuador and Chile, the republic of Peru has a nearly tropical climate on the coast; hot and dry like the coast of lower California, but the climate of the interior is agreeable and healthful. A system of education is maintained by cities and government. The Roman Catholic is the recognized religion. Revenue is derived from customs and direct taxes, chiefly. Mineral resources are great and varied. Enormous deposits of salt exist, also sulphur, gypsum and petroleum. Peru has always been famous for production of silver, of which 2641 mines were in operation in 1891. Gold mines are also abundant. Commerce is chiefly with Great Britain. Agriculture is varied. Sugar is the most extensive crop. Cotton growing is important, also rice, grapes, coffee, potatoes, grain, alfalfa, cocoa, wool and india rubber. Except upon the large estates, farming methods are very primitive.

Uruguay.—Separated from Argentine by the river La Plata, Uruguay possesses many of the general characteristics of its western neighbor. It is a country of wide undulating plains, well adapted for production of grain and live stock. The climate is moist, mild and healthful. Education is compulsory between 6 and 14 years. Roman Catholicism is the state religion. The foreign trade is conducted chiefly with the countries of Europe. Principal exports to the United States are animal products, such as hides, bones and beef extract. Cattle and sheep farming is the leading industry; the mild climate and rich pastures greatly favor the business. Export trade in frozen meat is making good progress. Minerals abound in the hilly regions. The soil is capable of great agricultural development. The breeds of cattle are being improved by the introduction of thoroughbred stock. Fruit succeeds well and also a great variety of vegetables. The establishment of agricultural colonies, which are being rapidly increased in number, will no doubt hasten the growth of the higher grades of agriculture.

Venezuela.—This is one of the richest republics of South America as regards natural resources. It has an area three times the size of France and five times that of Italy and larger than that of any European country except Russia. Commerce is favored by excellent harbors along the 1876 miles of coast line and by over a thousand rivers, of which the largest is the Orinoco, one of the great rivers of the world. Trade with the United States is growing rapidly of late years. The climate is tropical, with two seasons, wet and dry. The most healthful sections are those upon the highlands. The cultivated regions are extensive rich valleys, while the wide plains are used for pasturage. Near the Orinoco is a wooded belt which contains rich gold mines. Agriculture is the principal source of wealth. Besides the great live stock industries, which have increased several hundred per cent. in 15 years, the annual crops of coffee and cocoa are very valuable, also sugar cane, cotton, indigo, corn, fruit, etc. Almost any crop can be grown in some of the numerous zones of climate caused by the varying altitudes. Development of the various resources is attracting foreign capital and the government offers

Central and South America.

HISTORY AND EXECUTIVE GOVERNMENT.

	Independence gained.	Date of present constitution.	Name of president.	Length of term.	Term began.	Number in Cabinet.	Seat of Government.	Population of government city.
Argentine....	1853	1853	Senor Uriburu.....	6	1895	5	Buenos Ayres....	620,000
Bolivia.....	1826	1880	Senoro F. Alonso....	4	1896	5	Sucre.....	20,000
Brazil.....	1818	1891	Manuel V. Pereira..	4	1896	6	Rio Janeiro.....	522,651
Chile.....	1822	1833	Senor Ervazury.....	5	1896	6	Santiago.....	200,000
Colombia....	1819	1886	Antonio Roldau.....	6	1896	8	Bogota.....	100,000
Costa Rica...	1821	1870	Rafael Iglisias.....	4	1894	4	San Jose.....	25,000
Ecuador.....	1830	1884	General Eloz Alfaro,	4	1895	5	Quito.....	80,000
Guatemala...	1847	1879	J. M. R. Barrios.....	6	1892	6	Guatemala.....	65,000
Hayti.....	1804	1867	Gen. T. S. Sam.....	7	1896	6	Port au Prince...	60,000
Honduras....	1839	1894	Policarpo Bonilla...	4	1895	8	Tegucigalpa.....	12,600
Mexico.....	1821	1857	D. Porfirio Diaz.....	4	1896	7	Mexico.....	344,374
Nicaragua....	1811	1894	Gen. S. Zelaza.....	4	1894	4	Managua.....	18,000
Paraguay....	1839	1870	Gen. Egusquiza.....	4	1894	5	Asuncion.....	45,000
Peru.....	1824	1860	Nicolas di Pierola...	4		6	Lima.....	103,956
Salvador.....	1853	1864	Gen. R. A. Gutierrez,	4	1895	4	San Salvador.....	25,000
Uruguay.....	1825	1830	J. I. Borda.....	4	1894	5	Montevideo.....	244,342
Venezuela....	1830	1830	Gen. J. Crespo.....	2		6	Caracas.....	72,429

LEGISLATIVE, JUDICIAL AND MILITARY.

	Members in Senate.	Members in House.	Term of Senators.	Term of Representatives.	Number in Supreme Court.	Regular Army.	Militia or Guard.
Argentine.....	30	86	9	4	5	6,498	236,000
Bolivia.....	10	64				1,112	20,000
Brazil.....	63	212	9	3	15	24,877	
Chile.....	30	114	6	3		6,671	51,090
Colombia....	27	66	6	4	7	5,500	
Costa Rica...		32		4	11	600	37,000
Ecuador.....	32	33	4	2	7	3,341	47,000
Guatemala...		72		4	5	2,989	99,902
Hayti.....	39			6	5	650	7,000
Honduras....		40		4	3	2,000	26,767
Mexico.....	56	227	4	2	11	27,244	160,963
Nicaragua....	18	21	6	4		1,200	5,000
Paraguay....			6	4	3	3,250	
Peru.....			6	6		2,922	7,913
Salvador.....		42	1	1	11	4,557	100,000
Uruguay.....	19	69	6	3	6	3,454	3,264
Venezuela....	27	57	4	4	9	4,585	100,000

During the summer of 1896, a special committee of the National association of manufacturers of the United States visited the Atlantic seaboard of South America with the view of studying trade conditions, and were the recipients of distinguished attentions from government officials and commercial bodies in the Argentine Republic, Uruguay and Brazil. The development of South American trade concerns all sections of the United States. From their geographical position, the cities of the Gulf coast ought to command a good part of this commerce. The northern manufacturing centers on the upper Atlantic coast will also come in for a fair proportion, while the central cities having river communication with the Gulf will also compete.

Thou, too, sail on, O ship of State.—Longfellow.

liberal inducements to attract immigration. Foreigners are well received and some of them have made large fortunes in the country.

Guiana.—Three nations divide this country between them: The British, the Dutch and the French. British Guiana comprises 109,000 square miles, with a population of about 300,000. Sugar is the chief crop. Tropical product of all kinds flourish. Gold is found. Machinery, cotton goods, furniture, etc., are imported from the United States. Dutch Guiana is less than half as large as the British colony. Sugar, cotton and tropical fruits are grown and gold mining has become a leading industry. Commerce is principally with Holland, the United States and Great Britain. French Guiana is about the size and has nearly the same population as the Dutch colony, and the products are similar.

British Colonies.—The Bahamas comprise 700 small islands, with about 50,000 population. Fruit culture and fishing are the chief industries. The trade is principally with the United States. Barbadoes is a thickly settled island devoted to growing sugar and other crops. The Bermudas comprise hundreds of small islands, well known as health resorts and for the production of early vegetables. British Honduras is nearly as large as Massachusetts, with tropical climate and products. Jamaica is the largest of the British West Indies and exports large amounts of sugar, coffee and tropical fruits. Other groups of islands are the Turks, Caymans, Leeward, Windward, and northwest of Terre del Fuego the Falkland islands. Denmark holds three small islands, the sale of which to the United States has been considered. Holland owns various islands besides Dutch Guiana. The French possessions comprise two small islands and part of Guiana.

Hayti and San Domingo.—The republic of Hayti was formerly a possession of France, while San Domingo, which comprises the eastern two-thirds of the island, belonged to Spain. Among the West Indies the island ranks second to Cuba in size. The two republics are peopled chiefly by negroes and mulattoes. Government is upset by frequent insurrections, which also greatly interfere with the prosperity of the countries. Natural resources include a variety of minerals, also various tropical products, as sugar, coffee, cocoa and hardwoods. Most of the trade is with Great Britain, United States, France and Germany. During 1896 and 1897 several manufacturing enterprises were started with the aid of foreign capital.

Hawaiian Islands.—The islands which constitute the Hawaiian republic were discovered by Captain Cook in 1778. Eight of the 13 islands are inhabited. The surface is mountainous and there are two remarkable volcanoes. The climate is warm and mild. Sugar is the chief product, although during the past year or two some attention has been given to fruit growing. Mr F. M. Hatch, the Hawaiian envoy to this country, writes us July, 1897: "I desire especially to call your attention to the possibilities from coffee cultivation in Hawaii. There are those who predict that it will soon rival sugar in importance in Hawaii. It is essentially a crop for a small farmer. It is particularly favored by the Hawaiian government on account of the better class of population which it is hoped it will attract." Most of the commerce is with the United States, and American interests are predominant upon the islands. The population is about 100,000. The native Hawaiians are rapidly decreasing. On account of the recent increase of Japanese

immigration, the authorities have been led to suspect that Japan has designs upon the islands. Annexation by the United States has been strongly urged. The president of the republic is Sanford B. Dole, elected for six years from July 4, 1894.

The following table shows the increase in population by succeeding censuses and also the steady decrease of the native Hawaiians:

Population of Hawaiian Islands, 1836-96.

	Census 1836	Census 1853	Census 1860	Census 1866	Census 1872	Census 1878	Census 1884	Census 1890	Census 1896
Total population..	108,579	73,138	69,800	62,959	56,987	57,985	89,900	80,578	109,020
All foreigners.....		2,119	2,716	4,194	5,456	10,278	49,346	36,346	78,063
Hawaiians.....		71,019	67,084	58,765	51,531	47,602	44,232	40,622	30,957

Area, Elevation and Population of the Hawaiian Islands.

	Area in stat sq. miles.	Acres.	Hight in feet.	Popu- lation. 1896.
Hawaii.....	4,210	2,000,000	13,800	33,285
Mauī.....	760	400,000	10,032	17,726
Oahu.....	600	360,000	4,030	40,205
Kauai.....	950	350,000	4,800	15,228
Molokai.....	270	200,000	3,000	2,307
Lanai.....	150	100,000	3,000	105
Niihau.....	97	70,000	800	164
Kahoolawe.....	63	30,000	1,450	.....

Hawaiian Executive Council.

	Salaries.
Sanford B. Dole, President of the Republic of Hawaii,	\$12,000
Henry E. Cooper, Minister of Foreign Affairs,	4,500
* James A. King, Minister of the Interior,	4,500
Samuel M. Damon, Minister of Finance,	4,500
William O. Smith, Attorney-Gen.,	4,500
*Also Pres. Bureau of Agriculture and Forestry and Pres. Board of Immigration.	

Cuba.—The gem of the Spanish possessions in America is Cuba, now well-nigh lost to the mother country as the result of the present revolution. Cuba is 600 miles long and from 21 to 111 miles wide. Its area is 45,883 square miles, about as large as the state of Pennsylvania, while the population is about 1,600,000, distributed among six provinces. Sixty-five per cent of the people are white. The head of colonial government is a governor general, assisted by a council of government. The governor-general has very arbitrary powers. There are 14 Cuban representatives in the Spanish senate and 31 Cuban members in the Spanish House of Deputies. Each province has a legislative assembly; the cities have a mayor and council. A revolutionary government has been set up by the insurgents. The president is Salvador C. Betancourt and the vice president Bartolome Maso. The cabinet numbers four members. Cuba's industry and commerce have nearly been destroyed by the unsettled state of the island. Its resources include much fertile land, forest woods, and mines of gold, copper, iron, manganese, marble and asphalt. There are 1000 miles of railway and over 2000 miles of telegraph. Havana is the chief city, with a population of a quarter of a million. Americans have important interests on the island. The chief crops are sugar and tobacco. Coffee, rice, cotton and fruit are important items. The climate is healthful and the soil is said to be more fertile than any of the Antilles. During 1896 the amount of Cuban trade with the United States was only \$47,540,610 as compared with \$102,864,204 in 1893, the year before the revolution began. For 1897 the decline was still greater and the amount was estimated at one-fifth that of 1893. Our imports from Cuba greatly exceed the exports to that country. About 90 per cent of our imports from Cuba are agricultural products.

None can cure their harms by wailing then

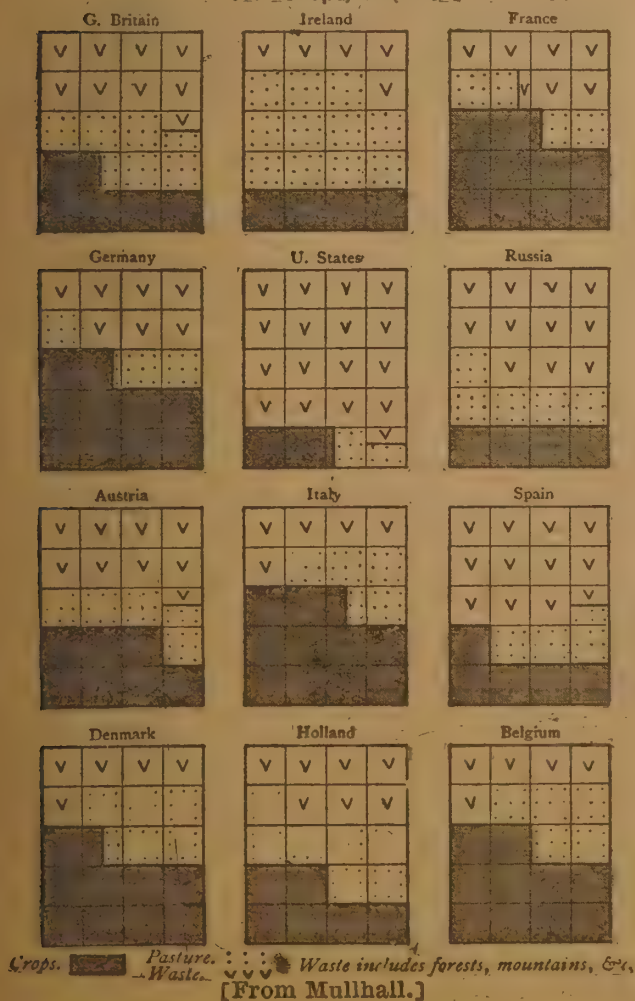
Central and South America.

POPULATION, EDUCATION AND TRADE.

	Area in sq. miles.	Population	Number of States.	Population per sq. mile.	Number of Schools.	Number of Pupils.	Annual Imports in Mil'ns of Dols.	Annual Exports in Mil'ns of Dols.
Argentina....	1,125,086	4,750,000	15	7.4	3,233	249,677	118.0	94.0
Bolivia.....	567,360	2,019,549	8	3.3			15.0	180.0
Brazil.....	3,209,878	16,330,216	21	5.8	7,500	300,000	65.0	65.9
Chile.....	293,970	2,963,687	23	10.8	1,201	101,954	54.0	72.0
Colombia....	504,773	3,878,600	9	7.7	1,735	92,794	11.5	15.0
Costa Rica...	23,000	243,205	5	10.5	306	16,974	13.2	14.5
Ecuador.....	120,000	1,270,000	16	10.5	856	52,839	8.5	11.5
Guatemala...	63,400	1,430,242	22	22.5	1,288	143,453	7.6	14.4
Hayti.....	10,204	960,000	5	10.0	400		10.0	14.1
Honduras....	43,000	396,048	13	9.0	573	20,518	1.5	2.6
Mexico.....	767,005	12,570,195	27	16.4	10,726	543,977	42.2	105.0
Nicaragua....	49,200	42,000	12	8.5	251	11,914	2.7	2.3
Paraguay....	98,000	1,337,439	23	13.8	292	10,944	2.4	12.7
Peru.....	463,747	2,621,844	19	5.6	1,177	71,435	5.3	5.7
Salvador.....	7,225	803,534	14	114.7	416	25,831	3.2	7.0
Uruguay.....	72,110	824,515	19	11.4	47	38,747	25.3	32.5
Venezuela...	593,943	2,323,527	9	3.9	1,415	100,026	15.5	22.3

AGRICULTURE.

Relative Areas of Crops, Pasture and Waste.



Naval Strength in South America.

The three South American nations which assume to be naval powers are Brazil, Argentine and Chile. Following are the number of war vessels of each.

	Ar-mored vessels	Cruisers	Gun-boats	Small war vessels
Arg't'e	7			23
Brazil,	6	11	8	22
Chile,	4	3	2	22

American Coffee Industry.

The leading article of export to the United States from the countries of tropical America, is coffee. In 1895, which was a typical year as to the comparative quantities exported by various countries, the figures were as follows:

From Brazil.....	217,935 tons
" Venezuela.....	26,355 "
" Mexico.....	17,631 "
" Salvador.....	10,798 "
" Costa Rica.....	8,666 "
" Guatemala.....	8,115 "
" Hayti.....	6,287 "
" Colombia.....	5,444 "
" Dutch East Indies	4,464 "
" British West Ind..	3,095 "
" British East Ind..	1,617 "
" Nicaragua.....	1,577 "
" Ecuador.....	535 "
" Honduras.....	291 "

The farm products of the Argentine Republic amount to 23 per cent on the capital employed, compared with 18 per cent in Australia, 19 per cent in Canada and 20 per cent in the United States.

The Great Problems of 1898.

AS TO LAND.

Reform in Land Transfer.

TORRENS SYSTEM OF LAND TRANSFERS AND REGISTRATION OF TITLES.

The system of registration of deeds in transfers of real estate now in vogue in the United States is becoming more and more complicated and cumbersome each year. Under existing laws the deed is made out and signed, taken before the proper official (a justice of the peace, notary public, judge or clerk of courts of records, etc.) and acknowledged, then recorded in the office of the recorder in the county in which the land is situated. The purchaser must determine from the records whether or not the owner has a right to sell. The difficulty lies not so much in passing upon the abstract, but every deed on record within the time covered by the examination must be examined wholly or in part to determine whether any one of them affects the matter in hand. When the country was new and the transfers comparatively few, the task was not a difficult one, but every year the problem becomes more and more complex. In some of the older cities and counties a complete examination of the records is impossible, even with the aid of indexes prepared for the purpose.

A simpler method has become almost imperative and Illinois and California have adopted the Australian system of registration of title, originated by Sir Robert Torrens, and put into operation for the first time in South Australia in 1857. The system was adopted by the Ohio legislature in 1896, but in June, 1897, was declared unconstitutional by the supreme court upon a technicality. The California law becomes operative July 1, 1898. That of Illinois is already in effect. In both cases the system is optional. The land owner can have his transfer made according to the old method if he so desires, but where land is once registered under new law it cannot be withdrawn.

Where land is to be brought under the Torrens system, application is made by the owner of a fee simple title to any court in the county having chancery jurisdiction. If the title is found clear, a certificate of title is ordered issued. This decree is final except in certain specified cases and a limitation of five years is placed in bringing action affecting titles to registered land. The certificate of title is bound in a record book and a duplicate issued to the owners. Sufficient space is left on the certificate for entering a short description of any charges or encumbrances to which the land is or may be subjected. Upon receipt for

registration of any instrument affecting the land, a reference to it is at once entered upon the certificate, and the duplicate. When a transfer is made the certificate is canceled and a new one is prepared. If only a part of the land is transferred, the certificate is canceled as to that part, or an entirely new certificate may be issued.

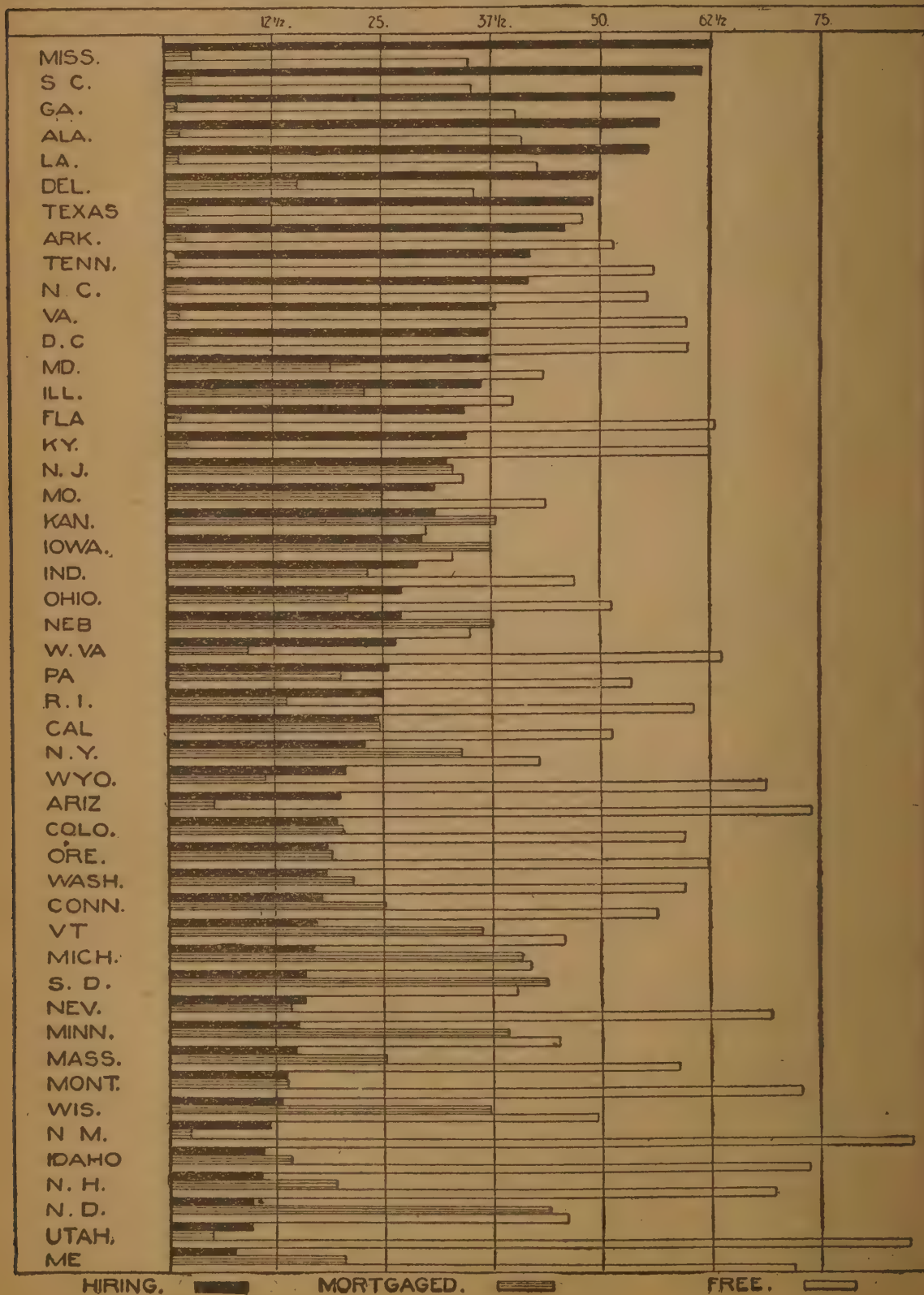
In other words, the present or old system of registration places the records of all previous dealings before the purchaser and allows him to examine them for himself, while the Torrens system presents the net results of all former dealings. In one case the purchaser must work out the problem for himself; in the other it is already worked out for him. All certificates before the last are obsolete and the examiner has nothing to do with them.

A case in point will illustrate clearly the working of the law. James Brown owns a farm, part of which is subject to liens, another portion to a lease of ten years, a third part has been sold for taxes, and the boundaries are indefinite and uncertain. He files an application to register under the Torrens law. The boundaries, by an accurate survey, are clearly defined and marked, the taxes are paid, the deed is ordered registered, and the lease and all the liens are noted as memorials on the register of title and a certificate of title is issued. Thereafter no search of the records is required. In one office and on one page of the register of titles, can be found the exact condition of the title and all liens and charges thereon, except judgments and decrees of the U.S. court and taxes and assessments of the U.S. After the land is once registered no abstract will be required and the transfer of the certificate will pass the title.

There is much less liability to error under the Torrens system, as all papers must be examined and approved by the proper official before land can be registered. Difficulties may and undoubtedly will arise, but they will be much less frequent and can be more quickly adjusted. If an error is made in issuing a certificate, the cost of correcting it devolves upon the party responsible for the mistake. Forgery may be effectually guarded against by requiring that the duplicate certificate of title be produced with each instrument affecting the land, when offered for record; therefore while the owner retains possession of his certificate no unauthorized dealings are possible except by forging a certificate with the official seal, which is difficult. An assurance fund is provided by requiring a payment of one-tenth of 1 per cent of assessed value of land to be registered. Persons wrongfully deprived of land are reimbursed by means of this fund.

The laws, as adopted by Illinois and California, those proposed for other states, and those in operation in Australia, New Zealand and the Canadian provinces, are in the main the same. The original South Australian statute has been modified so as to avoid conflict with state or provincial constitutions or for the sake of simplicity. In Illinois, for example, it is necessary to have some officer of the judiciary pass upon the application for certificates of title, rather than the county recorder who is registrar. The law was changed to comply with this necessity. In Canada and in the proposed Massachusetts law, the governor appoints a registrar of titles for the state, who has general supervision of the transfer work. The state is divided into registration districts, each with its set of officers. This is considered unnecessary in most of the United States, as county officers can perform the duties

Chart Showing by States Per Cent. of All Farm Families That Occupy Hired Farms, Owned But Mortgaged Farms, and Farms Owned Free of Debt. (1890.)



without extra compensation, and thus the commonwealth is saved a considerable outlay. In other minor points the laws differ, but the general purpose is the same in all.

According to the Illinois law the applicant for initial registration must advance \$15, which shall cover all expenses up to the granting of the certificate of title, unless the titles be derived from more than one source, when \$5 additional will be advanced for each additional source. Thereafter the expenses are as follows: Granting title and registering it, \$2; registering transfer, and issuing and registering of the new certificate of title, \$3; when land transferred is held upon any trust condition or limitation, \$5; entry of each memorial, \$3; filing copy of will with letters testamentary or copy of letters of administration and entering memorials of the action, \$5; cancellation of each memorial or charge, \$1; certificate showing condition of register, \$1.

In California the fees prior to registration are the same as in actions in the superior court. Thereafter the charges are as follows: Issuing certificate and duplicate, \$1.50; additional duplicate, 50c; registering each transfer, \$1.50; entry of memorial, \$1; cancellation of certificate, memorial or charge, 50c; certificate showing condition of register, \$1.50. For filing instruments the fees allowed a recorder for like services obtain. The fees in Canada vary from those in the United States but in a general way are about the same.

The Torrens law is now in force in the following localities outside of the United States: New South Wales, Victoria, Queensland, West Australia, Tasmania, New Zealand, British Columbia, Ontario and Manitoba. In California, Illinois, Ohio, Iowa and Massachusetts commissions were appointed by the governors to investigate the Torrens system. The first two states have adopted the system and if it stands the tests of the courts will be permanent. The Ohio legislature authorized it but the law was declared unconstitutional. Iowa and Massachusetts have up to date failed to place it upon their statute books.

Form of Certificate of Title (California).

STATE OF _____ } ss
COUNTY OF _____ }

A. B. (state occupation and residence, giving street and number.) State of (if an administrator, give the name of the deceased; if a minor, give his age; if under other disability, state its nature). Married to (name of husband or wife, or if not married so state), is the owner of an estate in fee simple (or as case may be) in the following land (insert description contained in the decree). Subject, however, to the estates, easements, liens, encumbrances and charges hereunder noted. (In case of trust, condition or limitation, say "in trust," or "upon condition," or "with limitation," as the case may be.)

Mortgage to C. D. for the sum of \$—, dated June 20, 1894, payable two years after date, with interest at — per cent per annum, interest payable semi-annually, or compounded.

Mechanic's lien in favor of X. Y. for \$—, filed September 24, 1894.

Assessment for improvement of — street. Amount \$—, due October 5, 1894. (Any other encumbrances or charges.)

In witness whereof, I have hereunto set my hand and caused my official seal to be affixed, this — day of October, 189 .

Registrar of Titles in and for the County of —, State of —.

[SEAL.]

Illinois Title Certificate.

FIRST CERTIFICATE OF TITLE PURSUANT TO ORDER OF _____ COURT OF _____ COUNTY.

STATE OF ILLINOIS, }
_____ COUNTY. }

..... of (residence, and if a minor give his age; if under other disability, state the nature of the disability) married to (name of husband or wife, or if not married say not married) is the owner of an estate in fee simple (or as the case may be) in the following land (here describe the premises) subject to the estates, easements, encumbrances and charges hereunder noted. (In case of trust, condition or limitation, say "in trust," or "upon condition," or "with limitation," as the case may be.)

Witness my hand and official seal this (date).

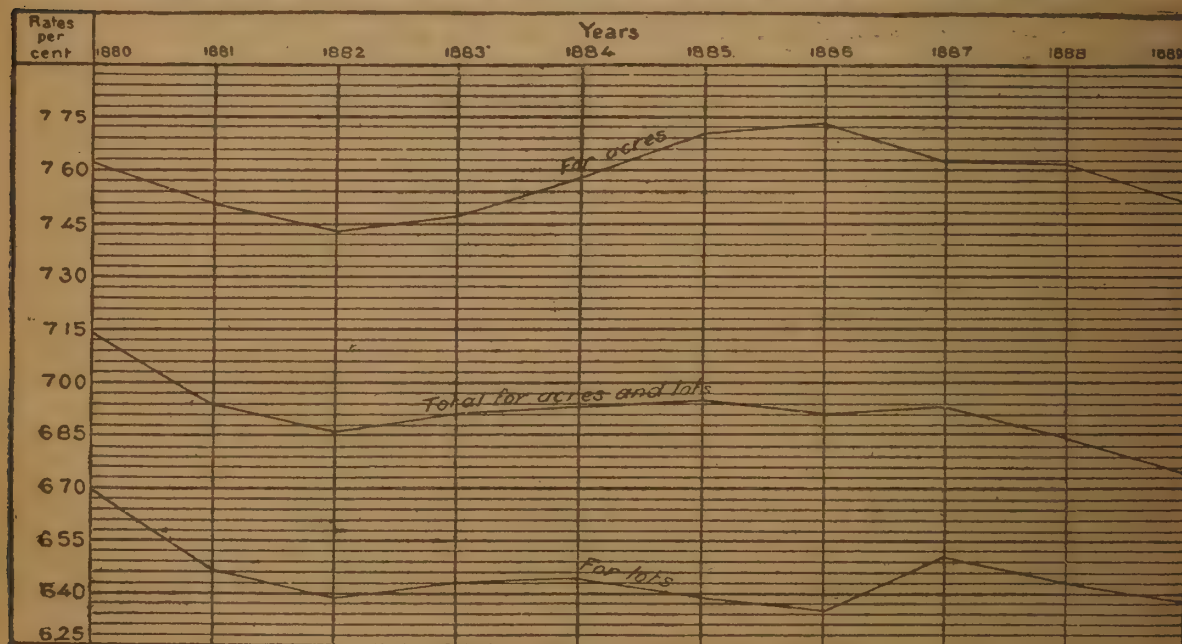
[SEAL.]

Registrar.

All subsequent certificates may be in like form, except that in place of the words "First certificate" etc., shall be the words "Transfer from No. ____" (the number of the next previous certificate), also the words "First registered ____" (date of first registration).

BIBLIOGRAPHY:--The Spectator for August, 1892, p. 1024; American Law Review, vol. 25, pp. 755 and 806, vol. 28, p. 196. American Law Record, vol. 10, pp. 449; Illinois law of 1897, Sec. State, Springfield, Ill.; California law, 1897, Sec. State, Sacramento, Cal.; Manitoba law, Land Commissioner, Winnipeg; British Columbia law, Land Commissioner, Vancouver, B. C.; Canadian Law Times, vol. 3, p. 475, vol. 4, p. 16; Canadian Law Journal, vol. 19, p. 162; Irish Law Times, vol. 17, p. 319; Sociological Scientific Association, 1872, p. 159, 1873, p. 205; Fortnightly Review, vol. 43, p. 544. The Torrens system explained, the Torrens Press, Chicago, 1894, p. 8. Gargue on Land Title registry in Ohio, Robert Clarke & Co., Cincinnati, O.; The Ohio System, Laning Printing Co., Norwalk, O.; Torrens System in Illinois, Chicago Legal News, vol. 26, p. 394. Criticisms of System, Harvard Law Review, vol. 7, p. 24.

Average Rate of Interest on Mortgages Incurred Each Year, 1880 to 1889.

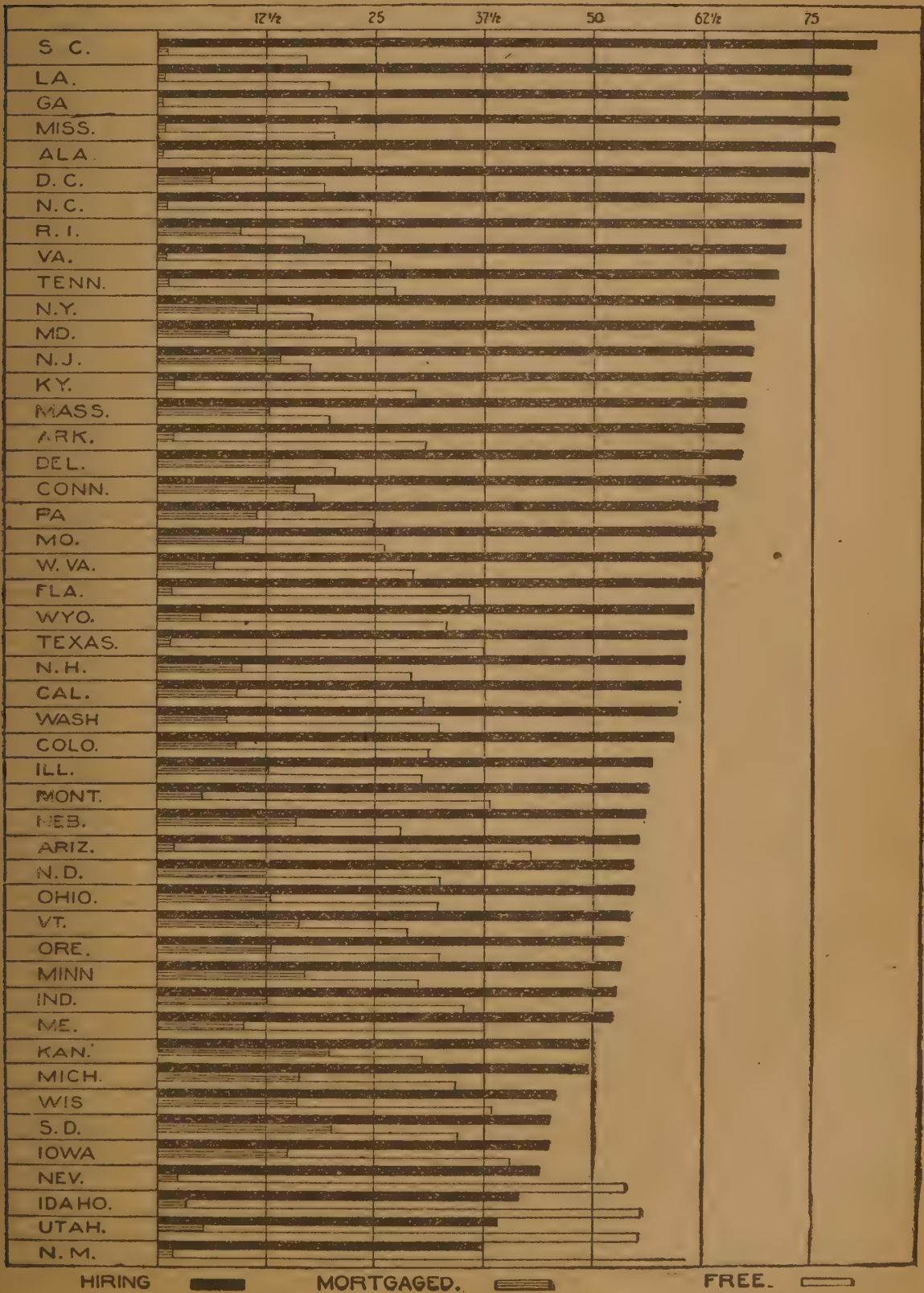


The merchandise transported by railroads in the United States is double the amount so transported by all other countries together.

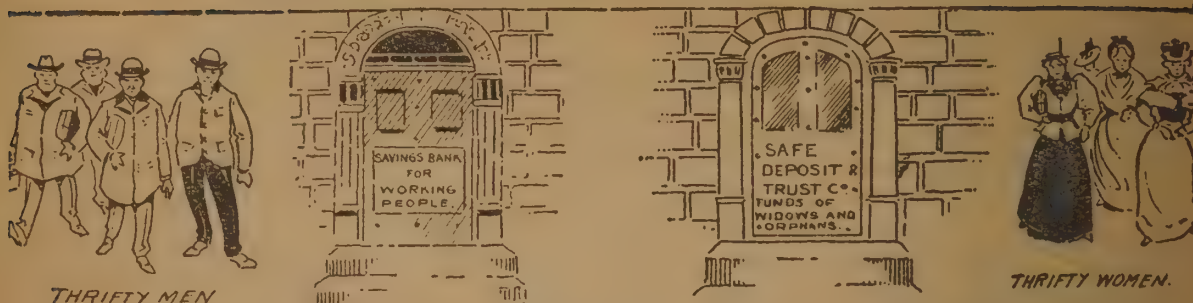
For the beginning of 1898 the value of the national wealth per capita is about \$1200, reckoning the same rate of increase since 1890 as for the twenty years preceding that date.

Other times, other manners,

Chart Showing Per Cent. of All Home Families in Each State That Occupy Hired, Owned-Mortgaged or Owned-Free Homes. (1890.)



The Refunding of Farm Mortgages.



The People and Institutions That Furnish the Money Which is Loaned on Farm Real Estate.

RATES OF INTEREST AT HOME AND ABROAD ON REAL ESTATE MORTGAGES.

These are the average rates that prevailed in 1890, according to the federal census, but usurious interest is often exacted.

GROUPS OF STATES (U. S.).	North Atlantic	South Atlantic	North Central	South Central	Western	United States
For all mortgages on real estate	5.50	6.66	7.43	8.08	8.89	6.60
“ “ “ farms and homes,	5.53	6.45	7.33	8.02	8.96	6.65
For mortgages on acres,	5.76	7.02	7.62	8.44	8.93	7.36
“ “ “ farms,	5.62	6.64	7.43	8.05	9.08	7.07
“ “ “ lots,	5.51	6.36	7.17	7.40	8.84	6.16
“ “ “ homes,	5.48	6.26	7.12	7.96	8.81	6.23

	Per cent.		Per cent.		Per cent.
Africa,	6 to 15	Belgium,	4 to 5		
British Asia,	6 “ 9	Denmark,	4 “ 4	Russia,	6½ to 7½
China,	7 “ 30	France,	4 “ 6	Syeden,	6
Japan,	10 “ 15	Germany,	3½ “ 5	Great Britain,	3 “ 5
Turkey and Asia,	9 “ 50	Greece,	6 “ 10	Canada,	5 “ 8
Central America,	9 “ 12	Italy,	4½ “ 9	Mexico,	7 “ 18
Australasia,	68	Netherlands,	4 “ 4½	Argentina,	7 “ 18
Austria-Hungary,	4 “ 5	Portugal,	4½ “ 6½	Brazil,	6 “ 12



The Farmer Who Borrows the Money

And the effect upon him of refunding at reasonable rates of interest. His present burden of \$70,000,000 interest per year, the rate being over 7 per cent, almost crushes the life out of him. Reduce it to 6 per cent, and he can get up, at 5 per cent it is easier, at 4 per cent he can lug it readily, while 3 per cent, or \$30,000,000, he can walk off without effort.

Mortgages on real estate in the United States are this year being paid off more rapidly than for several years. In most foreign countries loans on real estate are increasing in number and amount much more rapidly than in the United States. The proportion of mortgaged farms or homes in the United States is comparatively small. But the mortgaged farms of America, carrying as they do an average debt of only about

Lost time never returns.

one-third their value, and being the basis of all prosperity, nay, of existence itself, are certainly as good security as the best railroad properties. Indeed, American railways as a class are mortgaged for all they are worth—their 5500 million of bonded debts exceeds by \$500,000,000 their capital stock, and three-quarters of their stock doesn't pay dividends. The mortgage indebtedness on all the farms in the United States is hardly one-fifth the amount of the railroad bonds, and the margin between debt and value is three times as large on farms as on railroad.

THE AMERICAN FARMER'S CREDIT

is all right, as a general rule, but he can't afford to pay present rates of interest. In spite of the mushroom growth that characterized the rapid development of some parts of our great west prior to 1892, and in the face of falling prices, farmers who have failed to meet their interest have been few in number, and their default small in amount compared to the railroads. The railroads that have gone into receivers' hands the past four years owed over twice as much as all farm mortgages in the United States. The railroads that paid no dividends in '95 owed as much as all the farm mortgages amount to, although capitalized at 3500 millions of dollars. And no interest whatever is now paid on \$900,000,000 of railroad bonds—almost as much as the total mortgages on the owned farms! Surely the farmer's credit better entitles him to scale his interest than the railroads' credit warrants their enormous refunding operations.

Refunding operations are being conducted upon an enormous scale by public and private corporations. The Lake Shore railroad has recently replaced its 7 per cent bonded indebtedness with a new issue of bonds bearing only $3\frac{1}{2}$ per cent and running 100 years, saving in interest nearly \$2,000,000 per year on the total issue of \$50,000,000. The New York Central railroad proposes to refund its \$70,000,000 of 4, 5, 6 and 7 per cent bonds by hundred-year $3\frac{1}{2}$ per cents, thus saving over a million dollars a year in interest, or enough to pay an extra dividend of over 1 per cent on the capital stock. Other railroads bonds bearing 5 to 7 per cent interest amount to over \$700,000,000, and an attempt to refund them at 4 per cent will be made, and if successful will save \$20,000,000 yearly in interest.

Now the farmer's bonds (that is, the mortgages on his real estate) ought to be refunded. The average interest on them is over 7 per cent, ranging from 5 per cent at the east to over 20 per cent at the west and south. The total amount of these farm mortgages is about a billion dollars. If they could be refunded at an average of 5 per cent, the 2 per cent thus saved would put \$20,000,000 into the farmers' pockets every year. Refunded at an average of 4 per cent, the saving would be \$30,000,000 a year. Every mortgaged farmer can see at once what it would mean to him to reduce by one-fourth or one-third the interest he now pays. It is true that this has been done the past winter (1897-8) by hundreds of western farmers who were formerly paying exorbitant rates—from 8 to 24 per cent, whereas they now pay only 6 to 8 per cent. But the extraordinary conditions that have aided such prosperity cannot be expected to long continue. A falling interest rate, such as is one of the most remarkable features of the times since midsummer of 1897, shows that capital is to be satisfied in future with 3 and 5 per cent on the same securities that formerly paid 4 to 8 per cent. This means, if

Take time to be quick.

it means anything, that the capitalist (whether he has \$100 or \$1,000,000) believes that the day of big returns on safe investments has gone not to return for many years, if ever. This is equivalent to saying that large profits in all ordinary business are to be no more. And this means, should it so prove, that farming, like other industry, must be managed on a hardpan basis. Consequently it is even more imperative to the farmer to refund his mortgage at a lower rate than it is to a corporation, state or city.

THE OBSTACLE TO THE REFUNDING

of farm mortgages lies not in the lack of security, but in the absence of a feasible plan and machinery for carrying it out. Now that farmers are in such good credit and money so comparatively easy, is the best time to agitate this matter, to perfect a plan and to put it in operation. It was out of the travail following the Seven Years' war (1756-63) that Prussian farmers evolved the land credit banks that rescued them from an infinitely worse condition than any body of American farmers were in during the very depth of the late depression. These banks have endured for more than 100 years, and as eras of depression occurred in other European countries, it was the adoption of such mortgage banks that gradually helped the farmers up to prosperity. To-day, 23 land credit institutions (and a few mixed banks) in Prussia and Germany alone carry at $3\frac{1}{2}$ to 4 per cent over one billion dollars (see footnote) of mortgages, as much as all the mortgages on all the owned farms in all the United States.

A suggestion for the desired method is found in the building and loan associations (co-operative banks) that have been so successful in our American cities, but their plan must be adapted to the farmers' needs by including the best points of these European land credit banks. Indeed, American workingmen have in these co-operative banks a sum equal to nearly three-quarters of all the mortgages on owned farms in the United States. But these co-operative banks do not quite meet the farmers' need of long-time loans at low rates on well-secured real estate. They require monthly payments of dues or interest, while the average farmer is able to make only annual or semi-annual payments. These associations get plenty of capital from their own members, whereas to refund farm mortgages an agency is needed that connects the region

Of the 23 land mortgage banks in Prussia and Germany, the largest has a capital of about \$7,500,000, the smallest about \$150,000, averaging about \$2,500,000 each, and making a total of some \$60,000,000 of capital. They had outstanding in 1894, first mortgage real estate bonds amounting to nearly \$800,000,000, the largest bank having out over \$100,000,000 of bonds, the smallest more than \$1,500,000, and the average is about \$35,000,000. Bonds are issued in amounts from $2\frac{1}{2}$ to 68 times the capital stock. Prussian mortgage bonds increased from about \$140,000,000 in '84 to nearly \$400,000,000 in '94. German mortgage banks' bonds increased from about \$160,000,000 to over \$400,000,000 in the same time. Real estate mortgages held by the mixed banks also doubled, exceeding \$300,000,000 in '94. Together, these mortgage bonds amounted to over 1100 millions of dollars in the year last named. Foreclosures of \$4,500,000 in 1884 were the largest, the smallest being about \$2,000,000 in '91 and amounting to some \$3,000,000 in '94. Out of 4,500 mortgages there were only 12 foreclosed. From $4\frac{1}{3}$ to $7\frac{1}{4}$ % dividends were paid annually on the capital stocks, earned out of a margin of from $\frac{1}{2}$ to $\frac{2}{3}$ of 1 % charged on loans.

In Holland, 25 mortgage banks were established between 1882-95, one discontinued. Their capital increased from less than \$1,000,000 in '83 to over \$2,500,000 in '94; annual dividend paid on capital has averaged $4\frac{3}{4}$ %. They work with comparatively small capital, it serving merely as an insurance fund for the bonds; 21 out of 33 such banks held over 13 % of all the real estate mortgages in Holland in '94.

Thought is free.

Farm Mortgages in the United States.

The census of 1890 was the first effort ever made to find out all about mortgages on farms and homes. Much of the facts it ascertained have been given in *American Agriculturist* almanacs for 1896 and 1897. Some other data not heretofore published is printed below and in the accompanying charts, all compiled from the census volumes. Percentage of number and amount of real estate mortgages made during ten years, 1880-1889.

GROUPS OF STATES.	North Atlantic.	South Atlantic.	North Central.	South Central.	Western.	Total. U. S.
Mortgages under \$100.						
For number.....	6.3	13.3	4.7	10.5	2.0	6.0
For amount.....	.2	.8	.3	.6	.1	.3
Under \$500.						
For number.....	37.4	55.4	47.1	56.0	34.8	45.2
For amount.....	4.3	11.0	12.1	11.3	5.0	8.3
Under \$1000.						
For number.....	58.0	74.1	72.9	75.5	59.2	68.5
For amount.....	11.2	23.5	29.6	23.5	13.8	20.2
\$100 and under 500.						
For number.....	31.1	42.1	42.4	45.5	32.9	39.1
For amount.....	4.1	10.3	11.8	10.7	5.0	8.0
\$500 and under 1000.						
For number.....	20.7	18.7	25.8	19.5	24.4	23.4
For amount.....	7.0	12.5	17.5	12.3	8.7	11.9
\$1000 and under 5000.						
For number.....	34.3	22.9	24.7	21.2	34.2	27.4
For amount.....	34.3	43.4	46.1	37.8	36.3	39.8
\$5000 and under 25,000.						
For number.....	7.0	2.8	2.1	3.0	6.1	3.7
For amount.....	32.5	23.1	17.2	24.9	28.6	25.1
\$5000 and over.						
For number.....	7.7	3.0	2.2	3.3	6.6	4.1
For amount.....	54.5	33.1	24.4	38.7	50.0	40.0
\$25,000 and over.						
For number.....	.7	.2	.1	.3	.6	.3
For amount.....	22.0	22.0	7.2	13.8	21.3	14.9

Average amount of each mortgage made during the ten years 1880 to 1889.

On acres.....	\$1,226	\$782	\$922	\$1,019	\$2,069	\$1,032
On lots.....	2,203	1,255	994	1,105	1,578	1,509

Number and amount (in thousands) of real estate mortgages in force Jan. 1, 1890, with number of acres and lots covered.

Total number.....	1,614	294	2,320	305	241	4,777
Total amount.....	\$2,973,026	\$259,225	\$2,077,255	\$280,963	\$429,209	\$6,019,679
Number on acres.....	438	169	1,376	207	110	2,303
Amount on acres.....	\$497,585	\$117,982	\$1,194,452	\$184,729	\$214,398	\$2,209,148
Number on lots.....	1,176	125	944	93	130	2,474
Amount on lots.....	\$2,475,440	\$141,242	\$882,803	\$96,233	\$214,811	\$3,810,531
Number acres covered....	30,486	28,377	133,855	56,488	24,143	273,352
Number lots covered.....	1,641	175	1,726	173	441	4,161

Percentage of number and amount of real estate mortgages in force Jan. 1, 1890, in the different groups of States.

Total number.....	33.8	6.2	48.6	6.4	5.1	100
Total amount.....	49.4	4.3	34.5	4.7	7.1	100
Number on acres.....	19.0	7.4	59.8	9.0	4.8	100
Amount on acres.....	22.5	5.3	54.1	8.4	9.7	100
Number on lots.....	47.6	5.1	38.2	4.0	5.3	100
Amount on lots.....	65.0	3.7	23.2	2.5	5.6	100
Number acres covered....	11.2	10.4	49.0	20.7	8.8	100
Number lots covered.....	39.5	4.2	41.5	4.2	10.6	100

Percentage of increase of number and amount of real estate mortgages made in 1889 over those made in 1880.

Total number.....	71.6	129.4	73.2	132.3	322.1	90.7
Total amount.....	127.4	154.0	126.6	197.4	326.3	146.5
Number on acres.....	.5	101.5	26.8	96.4	261.2	41.5
Amount on acres.....	10.9	100.5	54.7	171.6	209.9	71.0
Number on lots.....	111.5	173.0	169.4	227.0	380.0	157.7
Amount on lots.....	168.4	211.0	267.2	247.4	517.7	216.8

where money is scarce with the section that has it to loan, besides encouraging the thrifty everywhere to invest in this agency. The so-called "national" building associations attempted to meet this need, but chicanery has caused them to make almost as sorry a record as the wildcat mortgage companies referred to previously. The good points of our own co-operative banks, of Canada's system of land mortgage corporations and of Germany's land credit banks, carefully put together would make a basis upon which to build a scheme for refunding mortgages that could not fail to fill the bill if properly managed. To work out a feasible plan is a big undertaking, however, not to be settled in a month or a year. It does not mean repudiation. It does not mean making the thrifty "carry" the shiftless. It does not mean any crazy scheme of government loans with an expensive lot of officials. It does not involve politics or the question of standards of value. But the plan desired is one that shall enable reputable farmers to utilize the credit that they now possess, but are not able to use—and to do this in a businesslike way that will commend itself, just as railroad refunding does. No overturn of established usage is necessary. What is wanted is a businesslike proposition for bringing together upon mutually advantageous terms the lender and the borrower of money upon farm real estate security.

MORTGAGE BONDS SHOULD BE READILY NEGOTIABLE.

Real estate mortgages, especially those on farms, are not bought and sold as are railroad bonds. They mostly remain in the lenders' hands, until due or paid. The lender cannot readily sell or transfer such



The Middle Man

who "negotiates" the loan by squeezing the life out of both lender and borrower to pay his commissions.

investors. But most of these concerns paid low interest to the eastern lender, exacted high rates from the western borrower, and waxed fat as long as this little scheme worked! An idea of the way in which both ends of this business were "plucked" is evident from the dividends paid by some of these companies on the small capital employed—of

securities, nor is the mortgage note a convenient form of collateral upon which to borrow money when desired. Moreover, a loan on real estate is usually obtained from an individual or institution resident in the locality. It is thus a local transaction devoid of negotiable features, and dependent upon local monetary conditions for fixing the rate of interest. This explains why it is that a New York state farmer may pay but 5 per cent on a well-secured farm mortgage, while an equally reliable loan in Iowa costs the borrower 8 per cent.

It was to overcome this difficulty that mortgage companies were organized to get money in the east by selling debenture bonds secured by mortgages on western farms, or selling the mortgages direct to

Life is ended when our honor ends.

from 10 to 33 per cent yearly between 1885 and '92. It was these wildcat loan companies, sometimes masquerading under very respectable names, that worked up the loaning of money to such a pitch that when the boom burst they collapsed, dragging down with them their victims east and west. The reckless mismanagement, utter lack of conservatism and in many cases even criminal methods of these wildcat mortgage companies could only result in failure, especially as there was no adequate system of official inspection or regulation of these concerns by state authority. New York and Massachusetts made some efforts at such control, but nothing of this kind was done at the west, where it was most needed.

But where this business was conservatively managed, and loans were made on well-established farms, where the farmer borrowed as little instead of as much as possible—mortgage loan companies are all right to-day, and have been a boon to borrower and lender. The Massachusetts commissioner on foreign mortgage corporations, reporting in 1895, said: "It is a noteworthy fact that the sound companies still in existence are those which have confined themselves most exclusively to loans upon farms, or to prudent loans upon real estate." All of which goes to show the field there is for a proper system of refunding farm mortgages. Be it constantly kept in mind, also, that the wildcat companies operated mainly in the more unsettled semi-arid west, and that the most exaggerated estimates show a far less proportionate loss on farm loans even under these conditions than upon railroad securities. Look, too, at the countless millions lost through investments in manufacturing stocks, trust shares and the like.

CANADA'S EXPERIENCE

affords some useful hints in dealing with this problem. She has avoided much of the mismanagement of American loan companies, while combining with her system some (but by no means all) of the good features of Prussian land mortgage banks. The large mortgage loan companies, aided as they are in reaching all parts of the country through its admirable system of branch banks, have kept the rate of interest within 3 per cent in the most newly settled regions of western Canada and 5 and 6 per cent in the older sections, while in the United States rates in the newer region have been 12 to 36 per cent! The writer paid 3 per cent a month on a Colorado farm loan in what is now so often spoken of as "the good old times of '73." The 62 leading companies in Canada obtained an average of 6½ per cent on all their loans in 1893 and paid an average of 4½ per cent on their debentures, leaving the large margin of 2 per cent for expenses and profits, so that they paid nearly 7 per cent dividends. These concerns are to-day in healthy condition, most of them, in marked contrast to the harvest of death among similar concerns in the United States. The extent to which these companies are absorbing the mortgage business of Canada is shown by their loans of 15 millions some twenty years ago, now exceeding 120 million dollars! Half of this is payable abroad, thus representing money brought into the country. One-third of all the loans reported to the Ontario government were made outside the province. This shows the national character of the business and accounts for the interest rate in Canada not varying more than 2 per cent from east to west.

Lean liberty is better than fat slavery.

Farm Mortgages in the United States.—Continued.

Average unpaid amount of a real estate mortgage in force Jan. 1, 1890.

GROUPS OF STATES.	North Atlantic.	South Atlantic.	North Central.	South Central.	Western.	Total. U. S.
For acres	\$1,135	\$695	\$868	\$890	\$1,933	\$959
For lots	2,104	1,130	935	981	1,642	1,540
Total	1,841	880	895	919	1,776	1,260

Percentage of the real estate mortgage debt in force Jan. 1, 1890, of the debt incurred during the ten years 1880-1889.

For acres	60.0	41.5	45.1	31.9	38.4	45.1
For lots	62.0	43.9	41.6	31.1	47.2	52.9
Total	61.7	42.7	43.6	31.6	42.4	49.8

Average life of mortgages in years.

For acres	6.8	4.4	4.5	3.1	2.7	4.5
For lots	6.2	4.0	3.2	2.4	2.6	4.7
Total	6.3	4.2	3.9	2.8	2.6	4.7

The average net debt on each acre was of its average value—

Per cent.	40.5	30.9	32.6	37.3	39.1	34.4
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Average number of acres covered by one mortgage for the ten years 1880 to 1889.

Average for ten years.	70	183	100	263	261	131
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Percentage of mortgages on acres and on lots of total mortgages.

Made during the 10 years.						
Number on acres	27.2	58.6	57.4	66.9	48.3	49.9
Amount on acres	17.2	46.9	55.5	65.1	55.1	40.5
Number on lots	72.8	41.4	42.7	33.1	51.7	50.1
Amount on lots	82.8	53.1	44.5	34.9	45.0	59.5
In force Jan. 1, 1890.						
Number on acres	27.1	57.6	59.3	67.9	45.9	48.2
Amount on acres	16.7	45.5	57.5	65.8	50.0	36.7
Number on lots	72.9	42.4	40.7	32.1	54.1	51.8
Amount on lots	83.3	54.5	42.5	34.3	50.1	63.3

Average amount mortgage debt placed on an acre.

For 1880	\$16.05	\$4.50	\$8.54	\$4.07	\$6.59	\$8.04
For 1889	18.84	4.12	9.96	4.40	9.65	8.31
Average for 10 years	17.45	4.26	9.22	3.87	7.91	7.88

Percentages showing average annual rates of interest on real estate mortgages in force Jan. 1, 1890.

On acres	5.8	7.0	7.6	8.4	8.9	7.4
On lots	5.5	6.4	7.2	7.4	8.8	6.2
Total	5.6	6.7	7.4	8.1	8.9	6.6

Interest charge (a in thousands of dollars) for one year on real estate mortgage debt in force Jan. 1, 1890.

On acres a	\$28,642	\$8,277	\$90,993	\$15,587	\$19,152	\$162,652
On lots a	136,416	8,978	63,287	7,121	18,986	234,789
Total a	165,058	17,255	154,281	22,708	38,138	397,442
Average per mortgage.						
On acres	\$65	\$49	\$66	\$75	\$173	\$71
On lots	116	72	67	73	145	95
Total	102	59	66	74	158	83

Usurious or legally extortionate rates of interest in force Jan. 1, 1890, in states having usury laws.

Per cent of number	0.16	4.53	0.40	8.07	4.85	1.37
Per cent of amount	0.15	2.85	0.28	5.53	3.17	0.79

'Tis liberty that everyone loves.

AN AMERICAN CREDIT FONCIER.

A group of New York city financiers suggest the chartering by congress of a national loan and mortgage company. They want authority to issue \$100,000,000 of stock for cash, and debentures for 2,000 millions secured by first mortgages. This would certainly refund mortgages at lower rates, if the scheme were carried out in good faith. But the Credit Foncier in France, upon which this New York scheme is based, has notoriously failed to help agriculture. On the contrary, its operations have drained the rural districts of France of capital and men that have been lavished on the cities. If it failed to help the farmer in France, far greater is the chance that it will fail in the United States. A suspicious feature of this New York scheme is that the proposed charter calls for rights that might enable the company to monopolize any or all branches of business. It could be turned into a trust of colossal proportions. The fact that the charter is drawn by one who has been prominent in the sugar trust is also suspicious. It may or may not be an effort to "scoop everything in sight" by posing as the farmer's friend, and then leaving the farmer out in the cold. Ostensibly designed to loan money on farm mortgages at 6 per cent and to give the west and south the benefits of such loans, the proposed company would inevitably find it more profitable to devote its capital and energies to the other operations outlined in its proposed charter. The refunding of farm mortgages alone is enough of business for the largest talent and capital.

The scheme may be conceived in good faith, but it would have to be much altered to adapt it to American conditions and to guard against the weaknesses of the Credit Foncier of France, upon which it is molded. How utterly the Credit Foncier failed to meet the needs of French farmers is shown by the development of co-operative syndicates among them to do in part what it failed to do. Still more to the point is the following excerpt from the History of Banking in the Latin Nations in which the great French authority, Essais, writing in 1895, says:

By the mortgage loan system of the Credit Foncier, a great impetus has been given to the building of cities, and the loans to communities have largely encouraged the prodigality of municipalities. As the capital of the whole of France, drained by the premium bonds, has been thrown into the cities and principally into Paris, it has come to pass that the country population has flocked to the towns. There, during the progress of great public works, they have found high wages; but they have remained, notwithstanding the loss of employment. The Credit Foncier has consequently contributed, more than any other responsible agency, to the growth of the proletariat, which affords the most favorable soil for the seeds of socialism. This institution, however, has not been able to realize in any large way the hope that it would cause the rural mortgages to vanish. Its scope hardly reaches the agricultural acres at all, and its influence there is almost nothing. For the purposes of loans to the cultivators of the soil, the Credit Foncier formerly conducted a distinct branch, the Credit Agricole, which completely failed to perform what was expected of it.

THE LAND MORTGAGE BANKS*

of Prussia and Germany, previously alluded to, have been instituted in most European countries. The Russian government makes direct loans

* For a complete set of rules governing one of the oldest, largest and most successful German land credit societies, see report by U. S. Consular Agent T. W. Peters, entitled, "Saxon Land Credit Association," published in pamphlet form by the Department of State, Washington City, D. C., Sept. 1, 1896. It will be sent free to all who apply to the department for it. This matter also appears in Consular Reports for September, 1896.

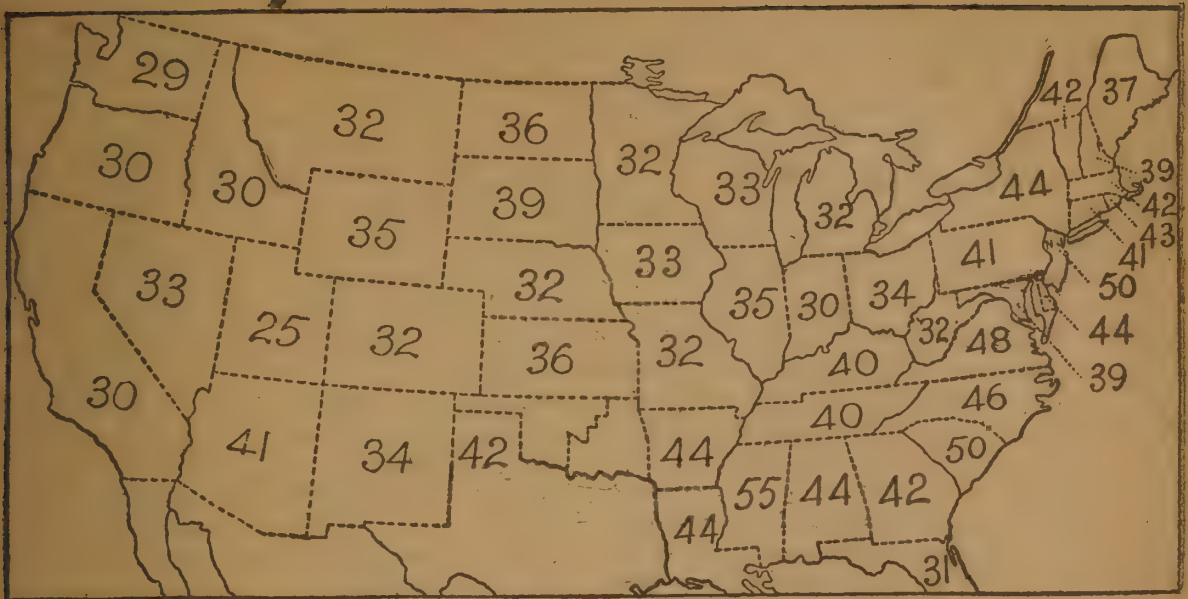
to farmers. So does the British government to farmers in Ireland, and with very satisfactory results. Some governments loan money to the mortgage banks. In all these countries, the mortgage banks are under even closer government surveillance than are national banks in the United States. As complaints about the deterioration of land credits are of constant recurrence, both in America and Europe, it is interesting to learn from an eye-witness, Chancellor of the Exchequer Von Struensee, the depth of misery which prevailed in the eastern provinces of Prussia before the institution of the land mortgage banks:

After the Peace of 1763, conditions of credit for the eastern landlords, notably in Silesia, were sore perplexed. In regions where the armies had long been quartered, estates were laid waste, farm buildings burned, cattle driven away or starved, fields left untilled for years, and agricultural implements were in wretched ruin. The price of real estate fell to two-thirds or even one-third of its normal value; and many whose lands bore debts to the same amount, had become insolvent. During the war, to be sure, and a short time after it, these conditions were veiled over, so to speak; nor did they declare themselves openly till some years from the Peace of 1763. While the war was raging, the land-owners had received high prices for their produce, they had paid taxes and interest with depreciated money and, misled by this unstable, abnormal course of affairs, they had lived somewhat lavishly.

Frederick regulated the currency immediately following the war, and creditors at once demanded their interest on sound money (in which taxes must also be paid) though the prices for crops were falling. Nobody cared to hoard ready money while the currency was depreciated by the war, and land owners could easily effect small loans; but as soon as peace was assured, the smaller trades-people were eager to advance their business, and they generally called in the loans. Proprietors quite commonly borrowed capital during the war by giving legal promissory notes—indeed, they were glad to borrow in this way, so as to avoid furnishing mortgaged security, whenever possible. Upon every fresh acceptance they could congratulate themselves upon holding estates, unencumbered by mortgages. But now the creditors everywhere demanded either payment or mortgaged security; and the fact was patent that estates would be heavily indebted in comparison with their depreciated value—perhaps even hopelessly so. Without credit, the larger proprietors could not maintain themselves. He who owns an estate worth \$50,000 is badly off, if it be cumbered with a debt of \$40,000; whereas the value of land quickly declines under poor harvests and sorry prices. Heavy damage may also be caused by cattle disease and hailstorms. In these circumstances nobody was willing to make further loans to the Silesian land-owners. Surrender of effects became a common practice and threatened to be the general fate. Just then the mortgage associations were created, and the larger proprietors were again enabled to procure credit, through letters of mortgage.

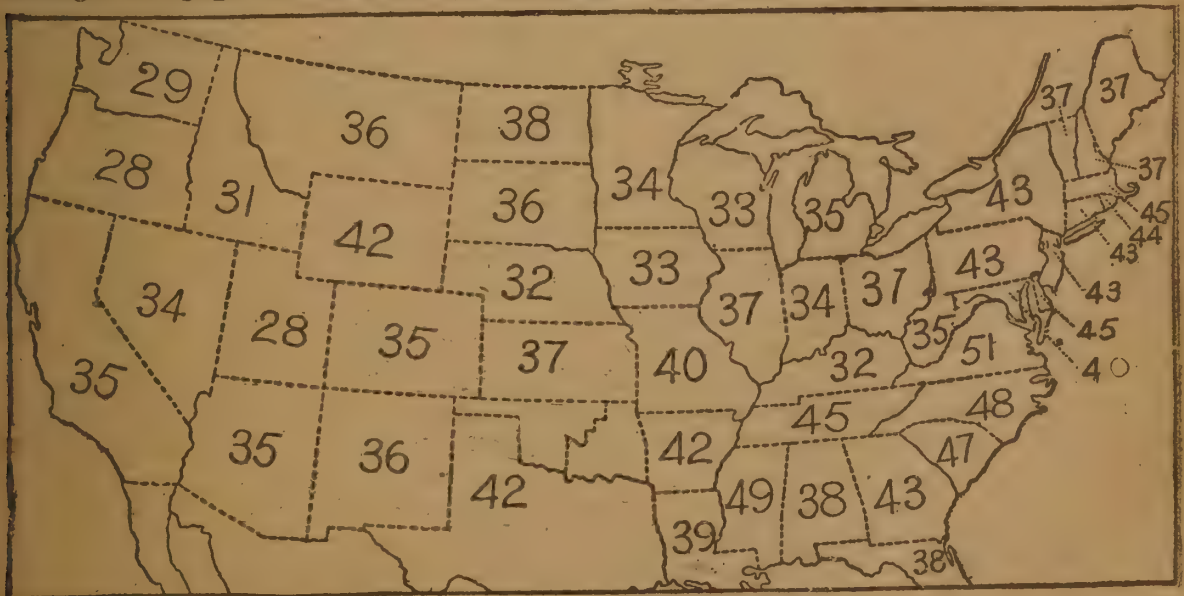
"When these land credit banks were first started," says Max Wirth in his chapters on banking in Germany and Austria-Hungary in that great work *History of Banking*, "the matter of membership was optional in most provinces, though obligatory whenever a loan was concluded. In East Prussia, however, membership was required of every land-owner, entitling him, of course, to borrow capital if he so desired. The society bound itself by this twofold pledge in every district: On the one hand, to furnish every proprietor with an amount of capital equal to half the value of his estate, and on the other hand, to pay every creditor who held a bond ratified by the society not only the promised interest cash down and in punctual semi-annual installments, but also the principal itself on demand with six months' notice.

"The process of raising a loan was as follows: The applicant addressed to the directors of the company a statement of the mortgage capital represented by his real property, then a valuation of his land was taken, and to make this as impartial as possible, certain fundamental rules were drawn up for every district, which might vary according to local conditions. From this valuation small cattle and agricultural implements were excluded. There were fewer loans on buildings than on land. When the estimated value of the property was fixed, the com-



Amount of Debt on Mortgaged Farms.

The total value of mortgaged farms in each state is represented by 100; the proportion or per cent of this value represented by the mortgages in force against such farms on Jan. 1, 1890, is shown by the figures above for the respective states. The average mortgage in 1890 was only $35\frac{1}{2}$ % of the value of the farm it covered.



Amount of Debt on Mortgaged Homes.

The total value of mortgaged homes in each state is represented [by 100; the proportion or per cent of this value represented by the mortgages in force against such homes on Jan. 1, 1890, is shown by the figures above for the respective states. The average mortgage in 1890 was 40 % of the value of the home it covered.

Since 1840 the United States has passed France and Germany in the manufacture of woven goods and is fast gaining on Great Britain.

According to Clark, the equatorial semi-diameter of the earth is 20,926,202 feet—3963,296 miles, and the polar semi-diameter is 20,854,895 feet—3950.738 miles. One degree of latitude at the pole—69.407 miles. One degree of latitude at the equator—68.704 miles.

Better no law than law not enforced.

pany's agent delivered to the borrower an amount which, in most societies, represented one-half, in others three-fourths of the assessed value in the form of letters of mortgage (we would call them mortgage bonds) signed by him in the company's name."

The society or bank sells these bonds on the stock exchange and delivers the money to the borrower, less a very small commission. The bank thus becomes the creditor of the borrower, and the debtor of the capitalist who buys the bond. The bank pays the interest when due and is reimbursed by the borrower, who also has a right to pay installments of specified amount. Most of these bonds run for from twenty to forty years, and the borrower is obliged to pay a certain amount on the principal each year in addition to the interest, so that the sinking fund thus created will wipe out the bond at maturity.

Wirth testifies that "these bonds suffer less from political events than any other commercial paper. Although handled on the stock exchange, they allow no play for jobbery. In ordinary times they are quoted from 2 to 7 per cent above par. These mortgage bonds even safely withstood the terrible times of the French invasion at the beginning of the nineteenth century. Respites were necessary in some cases of interest payments, and there was a decline in prices, but after peace was restored the bonds soon rose again to par value."

The interest charged borrowers to these Prussian land banks is $3\frac{1}{2}$ to 4 per cent. The expense of running the associations never amounts to more than $\frac{1}{4}$ of 1 per cent. The borrower pays the society or bank from $\frac{1}{4}$ to $\frac{3}{4}$ of 1 per cent more than the bank pays on its bonds, the difference covering expenses and reserves, and allowing of 5 to 6 per cent dividends on the capital stocks in the cost of joint stock banks.

The credit society or land bank redeems the bonds in proportion to the partial payments made to it by borrowers. In addition to the real estate security, the bonds are secured by the joint responsibility of the associated members and in some cases by the guaranty of the state or province. Wirth says that this government guaranty is never drawn on, but it serves to facilitate the sale of bonds. A code of laws has grown up about these land credit societies that perfectly protects all the interests involved, as much the borrower as the lender. These funds are exempt from fees and taxes, and the societies are allowed to obtain capital from other sources than their members. In times past some of these land-credit societies were endowed by the state. They are governed by a board of directors appointed by the members, though there is an associate state commissioner. There has never been any scandal in the management of these institutions and all testimony is to the effect that they have proven wonderfully successful both in helping borrowers and in furnishing a safe investment. "The value of mortgaged properties is most accurately and justly ascertained and the granting of lands supervised with the utmost care."

There is some objection to these land-credit societies because of the unlimited liability of their members. This has led to the organization of joint-stock mortgage banks, in which the members' liability is limited by the amount of their stock. These joint-stock mortgage banks therefore have their capital and surplus as additional security for the mortgage bonds they utter.

During the forty years, from 1850 to 1890, the total wealth of the United States increased about ninefold.

All for each and each for all.

Farm Mortgage Facts.

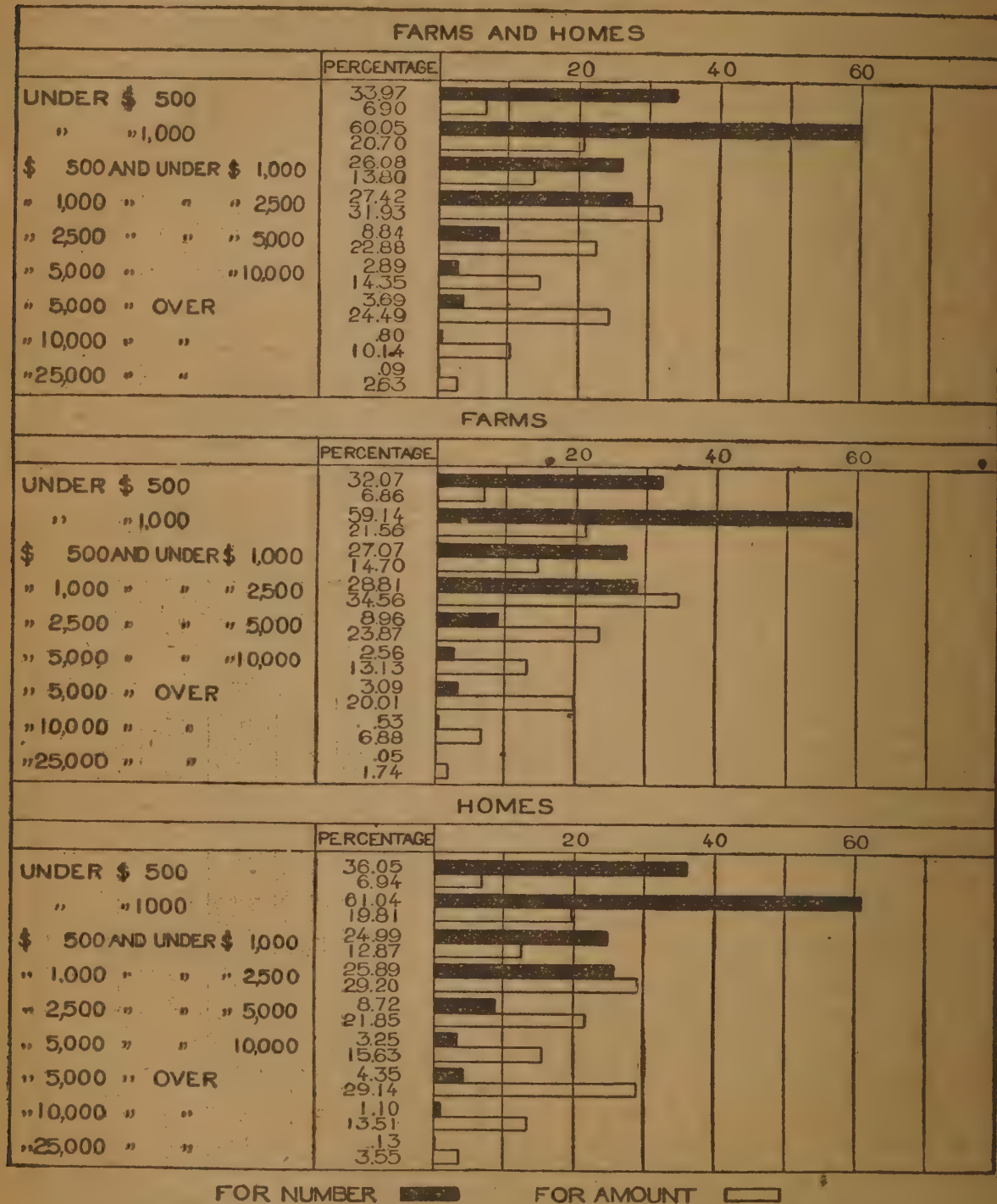
	Population.	Number of farms.	Per cent of farms owned.	Per cent of farms hired.	Per cent of owned farms free of debt.	Per cent of owned farms mortgaged.	Per cent of value covered by mortgages.	Average interest charge per farm per year.	Average rate of interest, %	For purchase and improvement, %
United States.....	62,622,250	4,564,641	66	34	72	28	36	\$87	6.3	74
North Atlantic.....	17,401,545	658,569	79	21	66	34	43	93	5.6	84
South Atlantic.....	8,857,920	749,600	54	46	93	7	40	88	6.3	66
North Central.....	22,362,279	1,923,822	74	26	57	43	33	65	7.3	73
South Central.....	10,972,893	1,086,772	52	48	95	5	43	112	8.3	54
Western.....	3,027,613	145,878	81	19	77	23	30	166	9.0	62

THE STATES IN DETAIL.

Maine.....	661,086	62,013	92	8	78	22	37	\$33	6.3	75
New Hampshire...	376,530	29,151	89	11	78	22	38	44	5.9	80
Vermont.....	332,422	32,573	82	18	56	44	42	59	5.9	84
Massachusetts.....	2,238,943	34,374	85	15	70	30	42	74	5.6	79
Rhode Island.....	345,506	5,500	75	25	81	19	43	89	5.8	80
Connecticut.....	746,258	26,350	82	18	69	31	41	70	5.6	80
New York.....	5,997,853	226,223	77	23	56	44	44	99	5.7	86
New Jersey.....	1,444,933	30,828	68	32	51	49	50	138	5.7	86
Pennsylvania.....	5,253,014	211,557	74	26	73	27	41	93	5.4	82
Delaware.....	168,493	9,381	51	49	71	29	44	122	5.7	83
Maryland.....	1,042,390	40,798	63	37	70	30	39	95	5.8	80
Dist. of Columbia.	230,392	382	63	37	96	4	33	104	6.0	100
Virginia.....	1,655,980	127,600	62	38	97	3	48	79	6.1	49
West Virginia.....	762,794	72,773	74	26	87	13	32	41	6.2	73
North Carolina....	1,617,947	178,359	58	42	95	5	46	57	8.0	49
South Carolina....	1,151,149	115,008	39	61	92	8	50	80	8.6	32
Georgia.....	1,837,373	171,071	42	58	97	3	42	57	8.3	37
Florida.....	391,422	34,228	65	35	97	3	31	131	10.8	74
Ohio.....	3,672,316	251,430	73	27	71	29	36	88	6.7	78
Indiana.....	2,192,404	198,167	71	29	67	33	30	67	6.9	79
Illinois.....	3,826,351	240,681	63	37	63	37	35	117	7.0	82
Michigan.....	2,093,889	172,344	83	17	51	49	32	63	7.1	80
Wisconsin.....	1,686,880	146,409	86	13	57	43	33	66	6.6	81
Minnesota.....	1,301,826	116,851	85	15	54	46	32	67	8.0	68
Iowa.....	1,911,896	201,903	70	30	47	53	33	97	7.4	79
Missouri.....	2,679,184	238,043	69	31	64	36	32	68	8.0	73
North Dakota.....	182,719	27,611	90	10	51	49	36	86	9.5	47
South Dakota.....	328,808	50,158	84	16	48	52	39	68	9.5	39
Nebraska.....	1,058,910	113,608	73	27	48	52	32	89	8.2	60
Kansas.....	1,427,096	166,617	69	31	45	55	36	92	8.2	52
Kentucky.....	1,858,635	179,264	65	35	96	4	40	71	6.7	62
Tennessee.....	1,767,518	174,412	58	42	97	3	40	41	6.2	71
Alabama.....	1,513,017	157,772	43	57	96	4	44	54	8.9	26
Mississippi.....	1,289,600	144,318	38	62	92	8	54	61	9.8	14
Louisiana.....	1,118,587	69,294	44	56	96	4	44	193	8.1	31
Texas.....	2,235,523	228,126	51	49	94	6	42	75	8.4	83
Oklahoma.....	61,834	8,826	95	5	100	—	—	—	—	—
Arkansas.....	1,123,179	124,760	80	20	93	7	44	57	9.4	42
Montana.....	132,159	5,603	87	13	84	16	32	195	11.0	48
Wyoming.....	60,705	3,125	79	21	87	13	35	136	11.0	32
Colorado.....	412,198	16,389	80	20	75	25	32	131	9.2	61
New Mexico.....	153,593	4,458	88	12	97	3	34	149	10.1	38
Arizona.....	59,620	1,426	80	20	93	7	41	226	12.6	32
Utah.....	207,905	10,517	91	9	94	6	25	93	10.0	56
Nevada.....	45,761	1,277	84	16	83	17	33	357	9.6	52
Idaho.....	84,385	6,603	89	11	84	16	30	126	10.6	51
Washington.....	349,390	18,056	82	18	73	27	29	131	9.9	62
Oregon.....	313,767	25,530	81	19	77	23	30	118	9.1	65
California.....	1,208,130	52,894	76	24	68	32	30	299	8.8	63

Ill kings make many good laws.

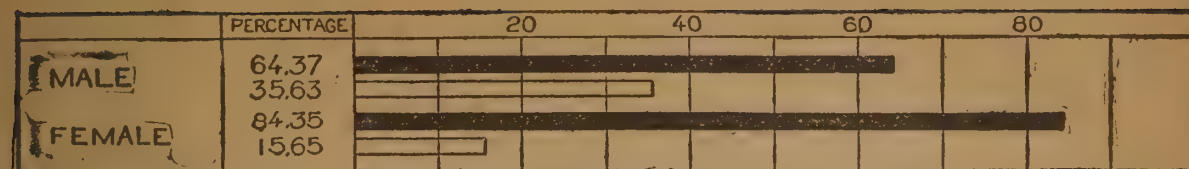
Percentage of Families in the United States Occupying (in 1890) Owned and Encumbered Farms and Homes, and Percentage of the Amount of Such Mortgages Classified as to Size.



More than half the total number of Europeans in the Union have settled in the western states.

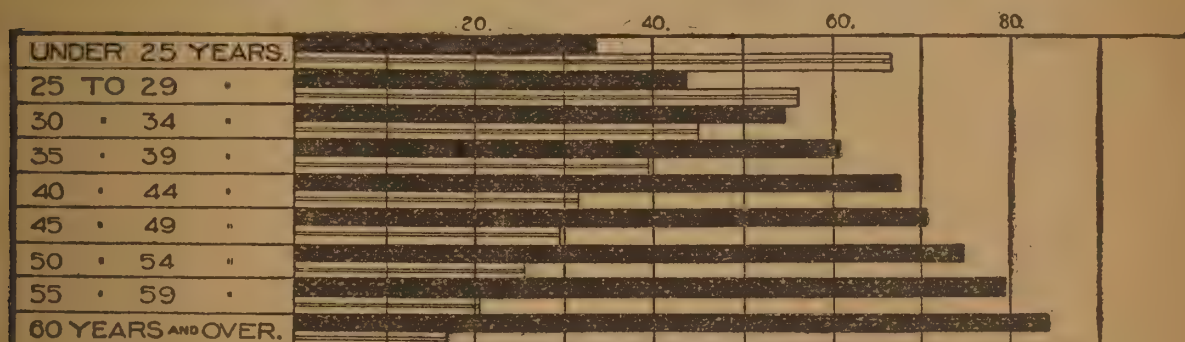
The most remarkable feature of population changes in the United States is the gain of city population, of which the growth has been four times that of the country population since 1860,

Let justice be done, though the heavens fall,



Farm Owners of the United States Classified by Sex.

It will be seen by the table that of the men who manage farms, about two-thirds own the farms they manage, while of the women farmers more than five-sixths own the farms they occupy.



Farm Owners in the United States Classified According to Age.

The striking fact to be gathered from this chart is the large proportion of farms owned by elderly men.

Average Annual Interest Charge on each farm and home, 1890.

SUMMARY FOR THE GROUPS OF STATES.

	On farms.	On homes.
North Atlantic.....	\$88	\$93
South Atlantic.....	72	70
North Central.....	81	63
South Central.....	70	77
Western.....	204	140
United States.....	87	80

THE STATES IN DETAIL.

	F.	H.		F.	H.
Ala.....	\$54	\$98	Neb.....	89	85
Arizona.....	226	158	Nevada.....	357	158
Arkan..	57	81	N. H....	44	52
Cal.....	299	154	N. J.....	138	93
Col.....	131	137	N. M....	149	112
Conn...	70	92	N. Y....	99	107
Del.....	122	92	N. Car..	57	67
D. of C..	104	146	N. Dak..	86	73
Fla.....	131	105	Ohio....	88	58
Ga.....	157	80	Okla....	...	...
Idaho....	26	102	Oregon...	118	122
Ill.....	117	78	Penn...	93	81
Ind.....	67	43	R. I....	89	108
Iowa....	97	51	S. Car...	80	90
Kan.....	92	69	S. Dak..	68	65
Ky.....	71	57	Tenn....	41	51
La.....	193	116	Texas...	75	103
Maine...	33	41	Utah....	93	100
Md.....	95	55	Vt.....	59	45
Mass....	74	98	Va.....	79	67
Mich....	63	46	Wash...	131	129
Minn...	67	94	W. Va..	41	40
Miss....	61	72	Wis....	66	51
Mo.....	68	76	Wyo....	136	142
Mont....	195	143			

Debts and Assessed Valuation.

Millions of dollars, from Statistical Abstract for 1896.

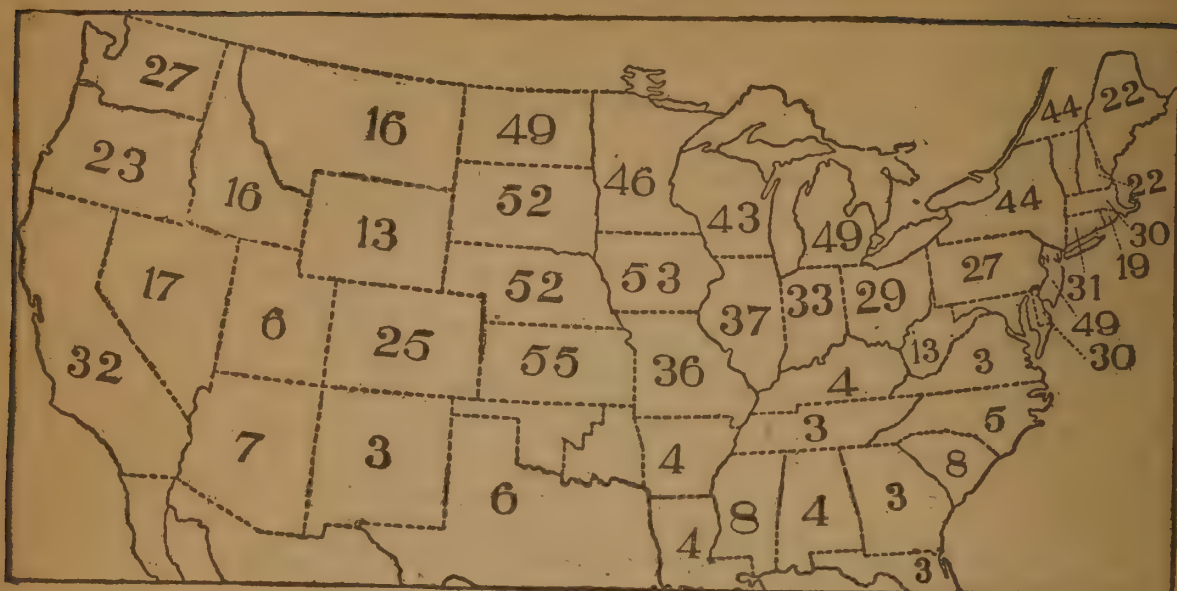
GROUPS OF STATES.	DEBT.		ASSESSED VALUATION.	
	1890	1895	1890	1895
North Atlantic	25	25	10,909	12,241
South Atlantic	90	72	2,315	2,426
North Central.	42	38	7,677	8,359
South Central.	66	57	2,546	2,693
Western.....	6	10	2,079	2,166
Total U. S....	229	202	25,526	27,885

Value of Farming Land.

During the past 50 years the acreage of farms in the United States has steadily increased, and the total value also, but the price per acre has decreased since 1870, although there was a slight increase between 1880 and 1890. The facts are shown as follows:

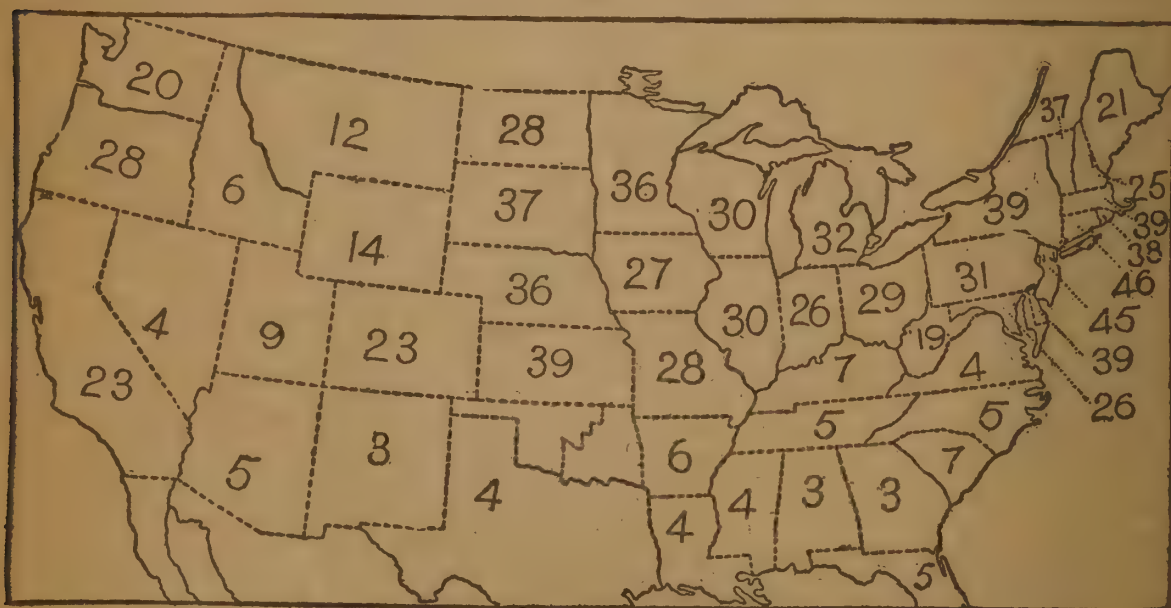
	Acres. In mil'ns.	Value. Mil'ns dols.	Price per acre.
1850	113	3,272	\$29
1860	163	6,645	41
1870	189	8,059	43
1880	285	10,197	36
1890	358	13,279	37

The average census value per acre of farms in 1890 was \$44 in New England, \$63 in the Middle States, \$23 in the South and \$39 in the West. The average price per acre in the United States was 10 per cent less in 1890 than in 1860.



Ownership of Farms in Each State.

The figures show how many farms were mortgaged out of every 100 farms occupied by their owners. All the other farms occupied by their owners are free of debt. The census of 1890 showed an average for the U. S. of 28 mortgaged farms out of every 100 farms occupied by their owners.

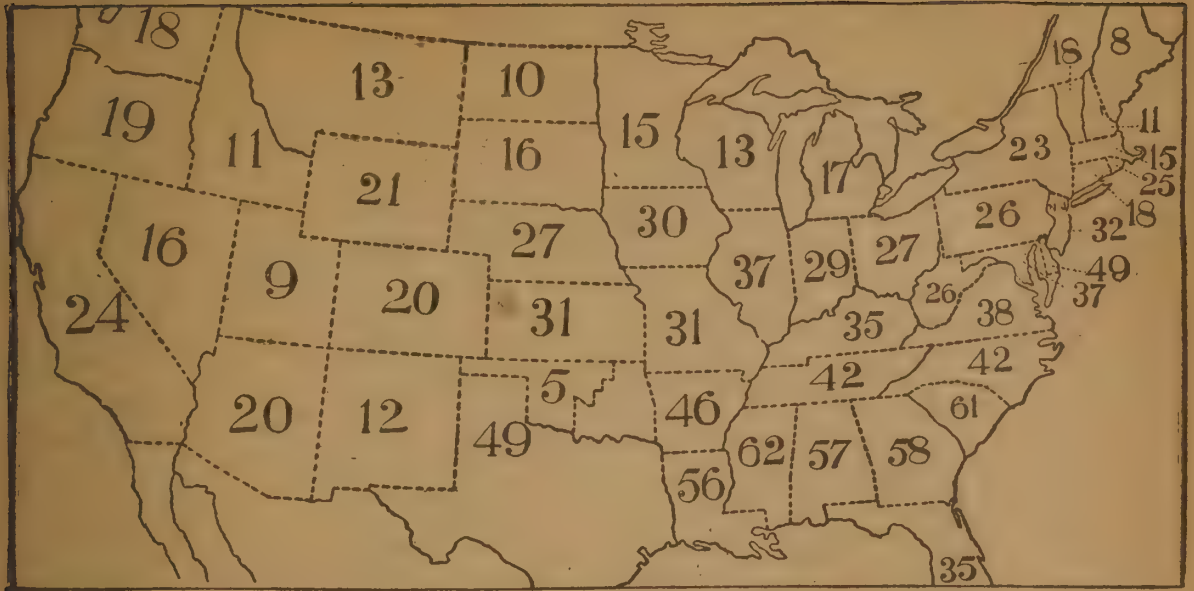


Ownership of Homes in Each State.

The figures show how many homes (other than on farms) were mortgaged out of every 100 homes occupied by their owners. These averaged 28 for the whole U. S., the other 72 % of homes occupied by their owners were free of debt in 1890.

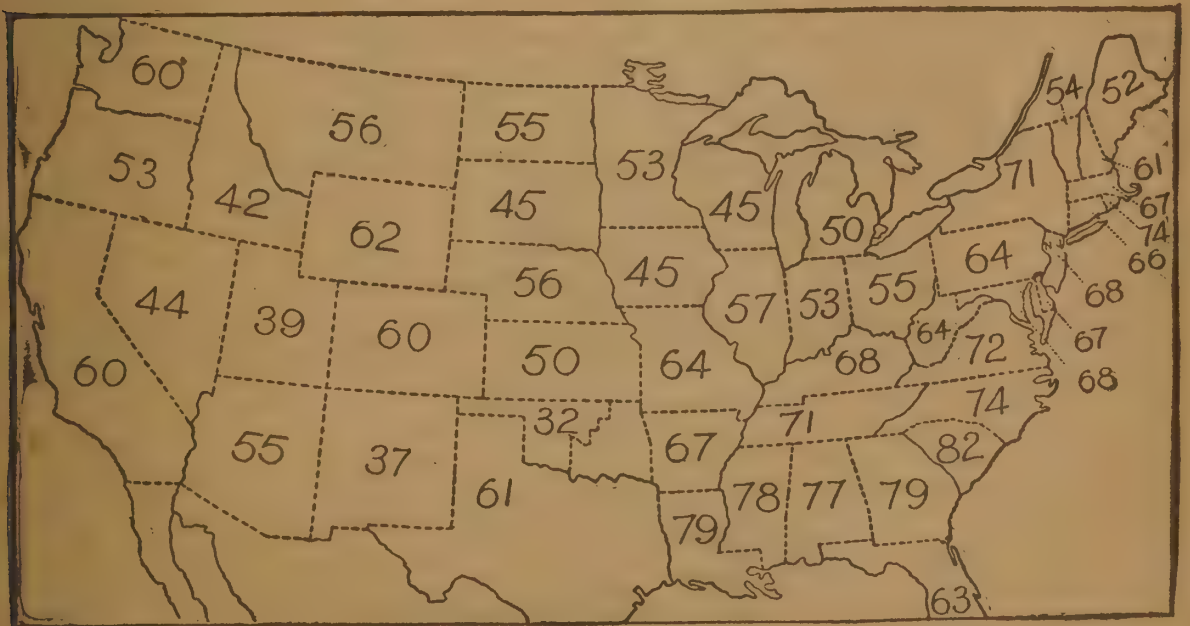
During ten years previous to 1890 Chicago had doubled its population and from the fourth city in rank has become the second. During the same period Omaha increased fourfold, Minneapolis and St. Paul together increased threefold and Denver grew at the same rate, while Kansas City more than doubled its population.

Justice is the rightful sovereign of the world.



Tenant Farmers in Each State.

The figures show how many farm families are tenants out of every 100 families living on farms in each state. The other farm families owned the farms upon which they lived. The census of 1890 showed an average of 34 tenant farmers in the whole United States out of every 100.



Tenant Homes in Each State.

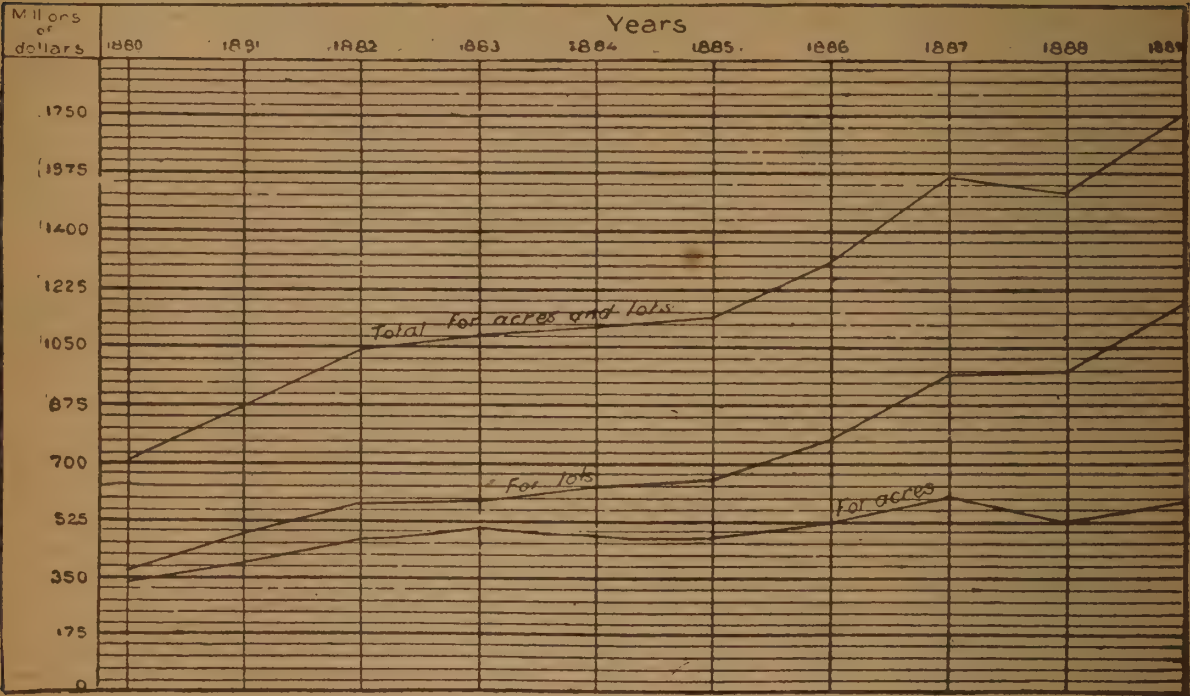
The figures show how many families occupying homes (not on farms) are tenants out of every 100 families living in homes, averaging 63 for the whole United States. The other home families own the homes in which they live.

Germans are the most numerous of foreigners in every section except in New England, where the Irish lead in numbers.

If the earth were not enveloped with atmosphere, the temperature on the surface would be about 330 degrees Fah below zero.

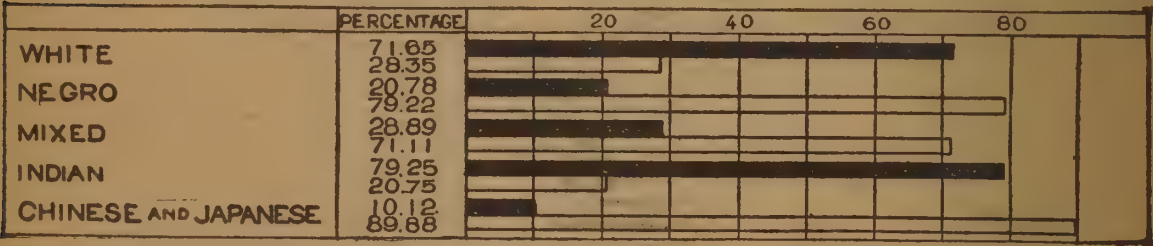
'Tis a great journey to the world's end.

Amount of Real Estate Mortgages Incurred in Each Year, 1880 to 1889.



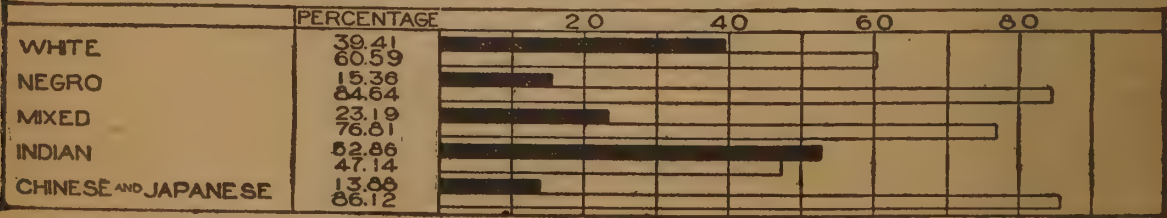
Owners of Farms in the United States.

Classified by color. Per cent given compared with all farm families.



Owners of Homes in the United States.

Classified by color. Per cent given as compared with all home (not on farms) families.

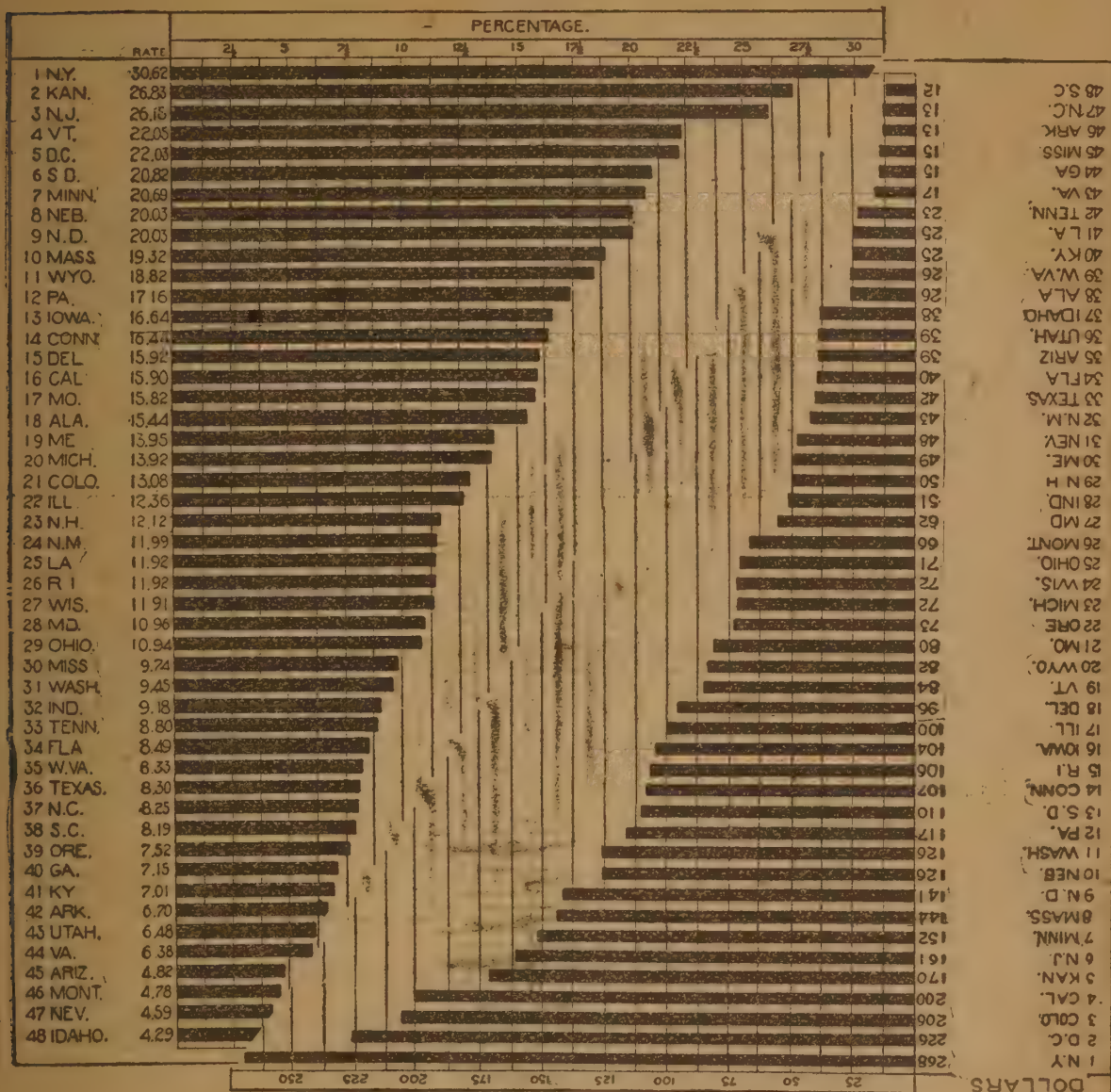


The population of the United States is now about equal to that of France and Great Britain together.

For the whole United States the density of population is 23 per mile; much less than that of Europe, which is 80 per square mile, but the population of the middle states is 135 per mile, or nearly twice the ratio prevailing in Europe.

My house is my castle.

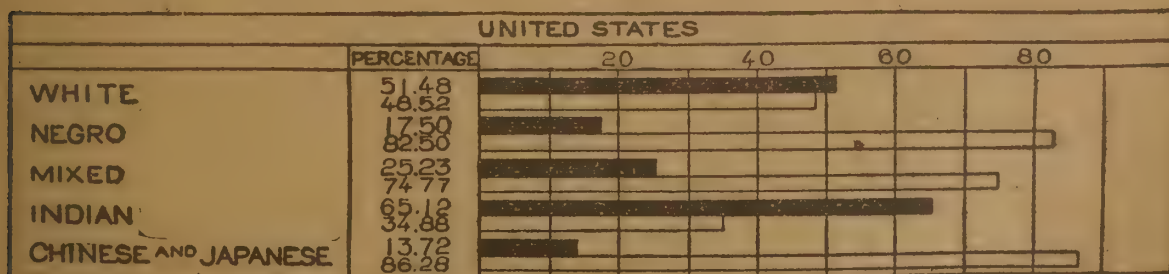
Per Cent. of Mortgage Debt of the True Value of All Taxed Real Estate.



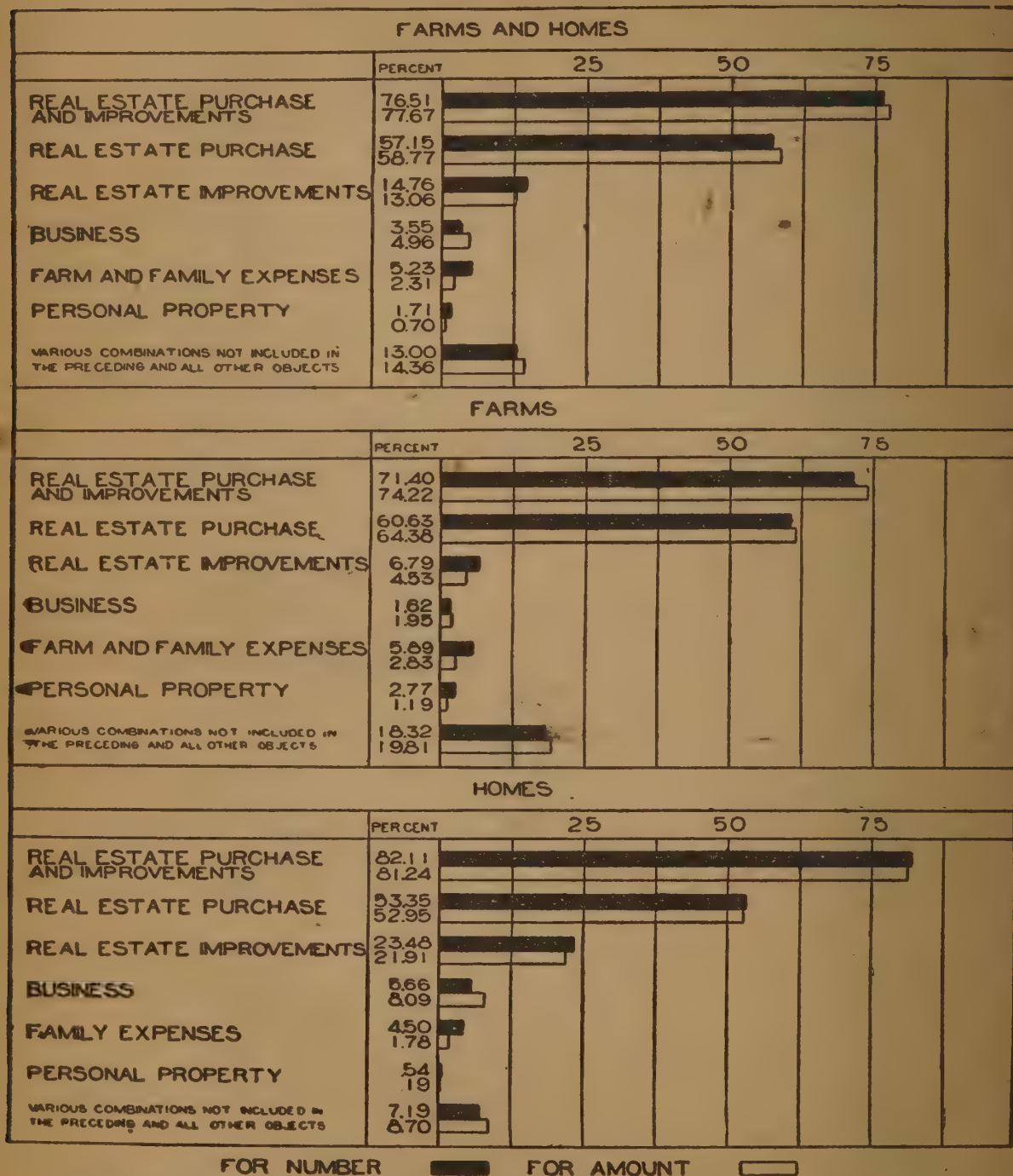
Per Capita Amount of All Mortgages on All Real Estate in Force in Each State on Jan. 1, 1890.

Owners of Farms and Homes in the United States.

Classified by color. Per cent given as compared with all the families in the United States, occupying farms and homes.



Percentage of Families in the United States Occupying in 1890 Owned and Encumbered Farms and Homes, and Percentage of the Amount of Mortgage, Classified According to Objects for Which it was Incurred.



Thanksgiving day in the United States originated in 1621. At first the practice of observing a day of thanksgiving in the autumn of every year was confined to New England, but it has now become national, the president appointing by proclamation the last Thursday in November as a day of national thanksgiving. The first national English thanksgivings were offered at St Paul's cathedral, for the defeat of the Spanish armada, on the 8th of Sept and Nov 24, 1588.

THE CAMPAIGN FOR SAVINGS BANKS.

Postal Savings Banks.

Five bills are now, (January 1898) before the United States senate looking to the establishment of the postal savings bank system, two having been introduced by leading republicans, a Massachusetts senator being among the number. Thorough and exhaustive reports have been presented to the senate by United States consuls on the nature and operation of postal savings banks in foreign countries. One of the earliest speeches made by John Sherman in congress was in favor of the postal savings banks; Jay Gould and Secretary Windom, while administering the treasury, urged it repeatedly. The grange, farmers' alliance and similar organizations have long agitated for postal savings banks.

Such banks were instituted in Great Britain in 1817, in which year they were the subject of legislation, and were previously sustained by private influence to enable the poor to provide for a rainy day and to inculcate habits of thrift and frugality. But it was not until May, 1861, that a bill, entitled "An act affording additional facilities for depositing small savings at interest, with the security of the government for the due repayment thereof," was passed, thereby establishing the postal savings banks. The bill was passed through the efforts of Mr Gladstone, who was at that time chancellor of the exchequer. The country at once recognized the advantage of a bank maintained at the public expense, backed by the immense store of England's capital and securing to the depositor a fair amount of interest. The first day in 1861 that the savings banks were opened to depositors, 435 deposits were received. In one year 2,535 offices were opened and nearly \$10,000,000 had been intrusted to them. In 10 years the number of depositors was 1,500,000 and the amount of deposits, including interest, \$95,000,000. In 1886 there were 3,731,421 depositors and the amount deposited \$254,371,940. Every money order post office in the kingdom had its savings bank attachment, the officers numbering 8,351. Almost all the depositors came from the poorer classes.

Great Britain has long since extended the system of banks to her colonies in Canada and Australia. France, Germany, Austria, Italy, Belgium, Holland and Japan have operated this system and co-operation is all the time being requested by the several governments.

ALL THE POSTAL SAVINGS BANKS IN THE UNITED KINGDOM

are authorized to receive and disburse deposits. Business is continued until a late hour of the day and Saturday until 8 p m. Deposits of one shilling (25c) are allowed and are limited to \$150 in one year or \$750 in all, exclusive of interest. When principal and interest amount to \$1000, all interest ceases until the amount is reduced. Interest of 2½ per cent is allowed on every pound (\$5) deposited and is computed from the first day of the calendar month thereafter. A person wishing to save as little as one penny can do so by buying a penny stamp and when 12 stamps have been saved an account may be opened.

On making his first deposit, every depositor is required to specify his full name, occupation, and place of residence, and make and sign a declaration that pledges him to abide by the regulations and stating that

Too much humility is pride.

he has no deposit in any other post office savings bank in Great Britain and Ireland. Parents or a friend of a minor under seven years may make deposits for him and if the minor is seven years or over he may make deposits exactly as if he was of age. Married women may make separate and distinct deposits and withdrawals, from the control of their husbands.

When deposits are made, they are entered in the depositor's book by the officer in charge, who affixes his signature and the stamp of his office to each entry. Every deposit is acknowledged through the post by the savings bank department in London and may be addressed to any designated post office, to be called for. Once a year, if possible 12 months after the deposit is made, the depositor's book is sent to the comptroller of the savings bank department at London for comparison with the books of that department and for the adjustment of interest. When a depositor wishes to withdraw the whole or any part of his savings, he makes application on a printed form furnished him, which is forwarded free of charge through the mail to the department in London and he receives a warrant for the amount required, which can be cashed at any post office savings bank. To offset the inconvenience of forwarding the application to the London office, there may be several centers of withdrawals and it is a great advantage to have a bank account in so many places. The limit of deposit is fixed at \$1,000 because the government does not wish to compete with the banking community, and the citizen can invest in government stock, annuities and life insurance. Trustees may make deposits under special restrictions.

THE BUSINESS DONE BY THE ENGLISH POST OFFICE SAVINGS BANKS.

	1889	1885
Number of post office savings banks.....	9,353	8,106
Number deposits.....	8,101,120	6,474,484
Amount deposits.....	\$99,071,540	\$75,173,470
Average each deposit.....	\$12.22	\$11.60
Interest credited depositors.....	\$7,215,930	\$5,460,560
Number withdrawals.....	2,757,848	2,280,062
Amount withdrawals.....	\$84,071,340	\$66,013,710
Average each withdrawal.....	\$30.47	\$28.95
Charges of management.....	\$1,684,770	\$1,282,010
Number accounts opened.....	924,010	750,862
Number accounts closed.....	637,128	548,887
Number accounts open at close of year.....	4,507,863	3,535,650
Amount increased interest standing to credit of all open accounts at close of year.....	\$314,998,100	\$238,489,190
Average amount standing to credit of each open account at close of year.....	\$69.87	\$62.45

In England and Wales every seventh person is a depositor, with \$70 at interest; in Scotland, 1 to 25, with \$43; in Ireland, 1 to 25, with an average of \$94 for deposit.

POSTAL SAVINGS BANKS IN CANADA

were established in 1868 with 81 such banks. In a year they had increased to 308. On June 30, 1868, the deposits amounted to \$212,507 and on June 20, 1882, they had reached \$6,435,989. The amount standing to the credit of open accounts, inclusive of interest, increased from \$204,588 to \$9,473,661. The business of 1882 shows an increase of 25,633 in number and of \$2,260,947 in amount of deposit for the year before. The number of depositors' accounts increased from 39,605 in 1881 to 51,463 in 1882, an increase of 11,858, and the balance due to depositors

Ill comes in war's bark.

increased in the latter year \$3,265,435. The total amount of interest allowed to depositors added to their deposits since April, 1868, amounted on June 30, 1882, to \$1,686,112. The expense of maintaining the post office savings banks, including interest allowed to depositors and all expenses of management, averages about $4\frac{1}{2}$ per cent on the balance in the hands of the government. The total loss sustained by the government on account of the post office savings bank since 1868 is \$6,517.

IN FRANCE.

It was January 1, 1882, that the Caisse National d'Epargne of France opened its doors. It has developed and increased its operations to a remarkable degree. The interest paid is 3 per cent. During the year 1890 the bank received at its headquarters in Paris and through its 6,817 branch offices, 1,940,371 separate deposits, amounting to \$50,465,832. There were 348,695 new accounts opened during 1890, the bank receiving in that year more clients than any since its organization. Of the new depositors 150,787 were women, 197,908 men, and one-quarter of the whole were under age. The total amount placed in trust was \$19,487,839. The banks have become a thermometer of the prosperity or depressions of the different portions of the nation. If the factories of France are shut down for any reason, then there is a falling off in the amount of money placed in the banks, showing that the employees of the factories have experienced the hard times. So also with the vineyards and agricultural parts of the country. The banks are conceded to be a great resource of the nation that has enabled it to pay with comparatively little suffering the immense war indemnity demanded by Germany.

Says the minister of commerce in his report to the president on these banks: "Increase in one department denotes good crops, the healthy condition of vineyards and harvest fields, fruit, vegetables, cattle and even weather. By the same process of deduction, the merchant tells where his goods may find a ready or indifferent sale, the speculator where the most favorable market exists, the investor the relative price of real estate. The larger cities do not, as far as the banks are concerned, follow in anything like their physical importance, for after the capital we find Grenoble, a city of only 51,000 inhabitants, securing second place. Out of 1,524,688 depositors, over half are credited with amounts under \$20, showing that the banks serve the working people who are unable to place their money in the more pretentious institutions. "From the date of its establishment the Caisse National d'Epargne recorded 14,169,756 transactions passing \$416,458,138. In 1882 there were 6,024 offices, in 1890 there were 6,817. On December 31, there was \$64,091,265 in the vaults and a year later \$79,079,736, the greater part paying from 3 to $4\frac{1}{2}$ per cent.

IN AUSTRIA

the eighth annual statement of the Imperial royal postal savings bank bureau states that its success in 1891 surpasses that of any former year. In the savings department the number of depositors increased by 64,510, numbering 847,716 at the end of the year, with deposits of \$49,683,988 in cash and state bonds to the nominal value of \$19,376,360, or an increase compared with the preceding year of \$6,791,656 in cash and of \$2,483,580 in bonds. Besides, there were bought for depositors and for-

Ill-got, ill-spent.

warded to them during the year bonds to the nominal value of \$4,730,000. For the greater part of the depositors are persons of limited means and each single deposit is for only a small sum. The following very interesting table is given, showing the number of depositors according to occupation :

CLASSIFICATION.	1891.		Preceding years.	
	New depositors.	Liquidation	New depositors.	Liquidation
Children.....	11,847	4,344	120,575	21,657
Students and school children.....	35,451	22,286	445,940	168,691
Private persons.....	14,684	10,948	95,405	43,649
Public officials.....	1,616	1,206	23,249	10,212
Other officials.....	3,488	2,551	40,207	17,708
Clergymen.....	596	361	7,213	2,923
Members of the army.....	3,652	2,113	28,737	12,539
Members of the police and customs,	1,405	396	9,287	2,403
Scholars, teachers and artists.....	3,135	1,428	26,817	10,852
Attorneys.....	345	175	3,769	2,927
Surgeons and apothecaries.....	570	332	5,758	4,690
Authors.....	70	98	2,541	1,914
Merchants.....	1,385	1,221	25,356	11,320
Manufacturers.....	273	222	7,884	5,574
Craftsmen.....	27,250	13,660	177,631	76,159
Merchants' clerks.....	4,646	2,219	36,007	19,512
Workmen in factories.....	2,450	1,269	22,889	12,522
Workwomen.....	3,858	1,198	20,684	8,736
Servants.....	14,912	6,525	97,549	35,089
Farmers.....	2,566	1,641	15,041	8,699
Farmers' workmen.....	134	286	4,406	2,960
Day-laborers.....	1,751	864	8,029	4,146
Miners and foresters.....	661	235	5,535	1,974
Mariners.....	125	59	643	293
Corporations, etc.....	1,769	1,277	19,700	12,922
Occupation unknown.....	74	356	2,584	474
Convicts.....	11	15	82	57
Total.....	144,947	80,437	1,307,269	524,423

IN THE LOW COUNTRIES.

The banks were established in Holland in 1881. So successful have they been that Holland and Belgium have concluded an agreement making deposits in the government or postal savings banks in the Netherlands, payable also in Belgium and vice versa. In 1893 there were 42,000 depositors in Holland's savings banks, or double that of a dozen years earlier, and nearly \$300,000 in interest was earned. The cost of the system is less than one-half of 1 per cent.

In Belgium the bank has been in operation since 1869. In 1870 there were 51,542 banks outstanding, representing \$2,083,000; in 1880 there were 198,000 banks outstanding with \$21,940,000 of deposits. The gross profits rising from investment of funds on deposit have been \$5,932,000, of which there has been distributed to the depositors \$4,522,000. During the years 1875-1880 the reserve had increased to \$754,948, when it was determined to fix it at \$312,000 and to distribute the balance. The expense during 15 years has been \$526,981.

There are in Italy 3449 post offices accepting savings deposits, the number of banks being 545,114, representing \$14,964,700 deposits. The average deposits for six months were: January, \$19.30; February, \$17.37; March, \$16.98; April, \$17.56; May, \$17.75; June, \$17.08. The average of other institution was: Savings banks, \$40.92; popular banks, \$115.80; other institutions, \$107.12.

Industry pays debts.

Co-operative Banks and Banking.

These institutions are more frequently called building and loan associations. Very complete data about them in 31 states was compiled by the United States commissioner of labor and published in his 9th annual report. It covered the various phases of their business for their respective fiscal years ending nearest to Jan 1, '93.

Later reports were collected by the same authority in 1897 and published in the bulletin of the department of labor for May, '97, covering the co-operative banks in the fourteen states that contain over three-quarters of all the building and loan associations in the country. The returns are of extraordinary interest as showing how co-operative banking has withstood the most acute panic and severest industrial depression the country has ever seen. It appears that in these fourteen states (Ct, Ill, Ind, Me, Mass, Mo, Neb, N H, N Y, N J, O, Cal, Pa, Tenn) during the three years ending at various dates in '96, the total number of these associations increased 2.6 per cent; the number of associations reporting (which represents practically all active associations a year old or over) increased 2 per cent; the number of shares outstanding increased 5.1 per cent; the installment dues paid in, paid up and prepaid stock and profits increased 2.4 per cent, while the total assets increased in the same ratio.

Shares Outstanding and Assets of Co-operative Banks in Fourteen States,
January 1, 1893 and 1896.

STATES.	No. associations reporting.	No. shares outstanding. Thousands.		Assets. Millions dollars.	
		1893	1896	1893	1896
California.....	133	391	363	\$18.5	\$21.5
Connecticut.....	15	18	56	.5	1.9
Illinois.....	669	2,672	2,330	75.8	82.6
Indiana.....	445	573	815	26.6	34.2
Maine.....	29	33	43	1.4	2.5
Mass.....	115	366	462	13.7	20.6
Missouri.....	366	465	300	35.8	26.4
Nebraska.....	70	52	71	3.1	3.5
New Hampshire.....	17	55	.....	1.4	1.9
New Jersey.....	288	557	694	31.7	38.9
New York.....	418	1,295	1,414	33.0	50.2
Ohio.....	721	1,036	1,257	67.6	92.1
Pennsylvania.....	1,079	1,604	1,796	81.9	99.5
Tennessee.....	78	362	386	12.9	13.4
Total.....	4,443	9,500	9,987	403.5	489.7
Loans (mostly real estate),.....				378.9	438.8
Cash and misc.....				24.6	50.9

Myrick's "How to Co-operate" (price 50 cents in paper cover, \$1 in cloth), from Orange Judd Company, 52 Lafayette Place, New York City, has a full chapter describing how to organize and manage a co-operative bank, as well as other forms of co-operative effort. It also gives a bibliography of co-operation.

Complete figures to Jan 1, 1898, would probably show a total of \$700,000,000 in the co-operative banks or building and loan associations of the United States, or eight times as much as in all private banks, one-third as much as in all the regular saving banks, nearly as much as in all loan and trust companies, and two-thirds as much as in all state banks.

The regular savings banks, for the three years ended with 1895, show a decline in numbers, a gain of 2 per cent in number of depositors, but

Industry is the parent of fortune.

only one-half of 1 per cent gain in deposits. The average amount for each depositor increased a trifle over 3 per cent, contrasted with a gain of six times as much in assets per each share in the co-operative banks. These co-operative banks, managed by the workingmen themselves for the loaning of workingmen's savings on workingmen's homes, increased their deposits, savings and profits more than one-fifth during three years of the worst industrial depression ever seen. This success of mortgage banks run by workingmen is the more remarkable in view of the fact that during the same period the assets of the regular savings banks barely held their own, although the latter are generally in charge of experienced financiers at high salaries. The workingmen's success is further emphasized by the fact that while their assets increased nearly one-fifth, the resources of national and private banks throughout the country showed a decline, although it is to be remembered that the latter do not loan on real estate. The way in which these workingmen's land credit banks have weathered the hard times proves conclusively that it is only necessary to adapt this form of co-operation to the farmers' needs to enable agriculturists to make equally as good a showing with equally as good management. And it should be equally as easy to find good men to manage the farmers' land credit banks as it is to run the building and loan associations in cities and towns.

State "Mutual," or Regular Savings Banks.

While all that is said in recommendation of a postal savings bank is true, there are many advantages in favor of the private savings banks systems established under the laws of Massachusetts and New York. The chief advantages are a higher rate of interest paid and that deposits are invested in the development of the immediate community in which the banks are located.

These advantages or differences are vital. The higher interest rate paid by the regular savings banks is due to the fact that their investments are largely in loans upon local real estate or collateral security, which pay a higher rate than national, state, municipal or railroad bonds, which are the utmost that postal banks would probably be allowed to invest in. This higher rate of interest is the strongest incentive to savings.

But the regular savings bank is even more valuable to the town or county in which it is located than to the individual depositor, because the bank employs a large proportion of its accumulations in making these local loans on well-secured improved real estate, or personal notes with three good sureties and collateral security besides. This largely explains the wealth and thrift of Massachusetts and New York. Their people's savings are thus directly employed in home manufactures or in enabling people to buy homes and farms of their own. The laws of these states encourage such local investment of savings, rigidly restricting the character of investments of savings bank deposits outside the county or state. Only those who have closely followed this subject can fully appreciate the substantial advantage it is to a community thus to employ its own savings in building up its own industries, homes and farms.

The savings bank commissioner of Massachusetts, in a recent report said: "The deposits in postal savings banks would of course be taken away from each locality and deposited in the treasury at Wash-

ington; and thus one of the leading features and benefits of our savings banks system—investing at home—would be defeated. It is also a question whether the methods which our United States government would be obliged to adopt, in order to properly protect itself and the depositor, would be such as to commend themselves as easy methods of deposit and withdrawal, particularly as relates to withdrawals. Experience in United States matters indicates slow methods and great delay; this certainly would defeat one of the main objects claimed."

THE INVESTMENTS OF THESE BANKS

in Massachusetts are limited to the following, with certain restrictions: On first mortgages of real estate situated in the commonwealth, in the public funds of the United States or any New England states, or the state of New York, in the bonds or notes of any city, county or town of certain states, in first mortgage bonds of any railroad company incorporated under the authority of any of the New England states, in the stock of banks incorporated under the New England states or the United States, or on notes of any citizen of the commonwealth with a pledge as collateral of any of the previously mentioned securities or on a certain per cent of deposits. In 1896 the assets were as follows:

Public funds,	\$69,460,753.99	Real estate by foreclosure,	\$1,813,083.15
Loans on public funds,	2,176,378.65	Loans on real estate,	201,985,142.35
Bank stock,	28,435,188.88	Loans on personal securities,	91,793,373.25
Loans on bank stock,	2,004,349.63	Loans to counties, cities and	
Railroad bonds,	49,379,499.05	towns (notes),	10,174,142.31
Loans on railroad bonds,	240,550.00	Loans on depositors' books,	44,997.05
Loans on railroad stocks,	1,001,232.84	Sundry assets,	183,927.65
Railroad notes,	3,245,000.00	Cash on hand,	15,433,442.95
Real est. for banking purposes,	4,048,965.63		
			<u>\$481,995,826.42</u>

RESERVE FUNDS.

The question of a surplus to meet losses and depreciation has attracted attention in nearly all the states. In Massachusetts previous to 1876 it was the custom to divide the surplus earnings by extra dividends every third year. In accordance with the public statutes the banks have accumulated \$8,631,746 as a guarantee fund. Under the law at least one-fourth and not more than one-half per cent must be reserved each year from the earnings until the guarantee fund reaches 2 per cent of the total deposits, the amount now in hand being about 2 8-10 per cent. Ordinary dividends shall be made every six months and cannot exceed 2½ per cent on all sums which have been on deposit for six months preceding, or 1½ per cent on all sums which have been on deposit for three months preceding; and no ordinary dividends can be declared or paid except as provided, nor on a deposit of less than three months' standing; and any such corporation shall be declared or paid on a less sum than \$3, or on a fractional part of a dollar. If at the time provided by the by-laws for making ordinary dividends the net profits for the six months preceding over and above the sum to be added to the guarantee fund do not amount to 1½ per cent of the deposits, no dividend of the profits is to be declared or paid except such as is approved in writing by the savings bank commissioners once in every term of three years. If the net profits accumulated over and above the guarantee fund and dividends amount to 1 per cent of the deposits which have remained in such corporation for one year then next preceding, such

net profits may be divided among the depositors whose deposits have remained therein for one year at least then next preceding, in proportion to the amount of dividends which have been declared on their deposits during the deposits then next preceding. But no dividend can be declared until the trustees cause an examination to be made and find that the amount thereof has actually accrued; and no dividend or interest can be paid unless authorized by a note of the trustees after such examination.

Statistics of Mutual Savings Banks.

FOR THE WHOLE COUNTRY.

Number of savings banks in United States; number of depositors; amount of savings deposits; average amount due each depositor in the years named, and average per capita. Includes stock savings banks, of which, in 1895, there were 353, with \$214,000,000 of savings deposits by 482,000 depositors.

YEAR.	Number of banks.	Number of depositors	Deposits millions of dollars.	Average due each depositor.	Average per capita.
1820	10	8,635	\$1	\$132	\$0.12
1830	36	38,085	7	183	.54
1840	61	78,701	14	178	.82
1850	108	251,354	43	172	1.87
1860	278	693,870	149	215	4.75
1870	517	1,630,846	595	337	14.26
1871	577	1,902,047	651	342	
1872	647	1,992,925	735	369	
1873	669	2,185,832	802	367	19.01
1874	693	2,293,401	864	377	
1875	771	2,359,864	924	391	
1876	781	2,368,630	941	397	
1877	675	2,395,314	866	361	
1878	663	2,400,785	880	366	18.48
1879	639	2,268,707	802	354	
1880	629	2,335,582	819	351	16.33
1881	629	2,528,749	892	353	
1882	629	2,710,354	967	357	
1883	630	2,876,438	1,025	356	
1884	636	3,015,151	1,073	356	
1885	646	3,071,495	1,095	356	19.55
1886	638	3,158,950	1,141	361	
1887	684	3,418,013	1,235	361	
1888	801	3,838,291	1,364	355	
1889	849	4,021,523	1,425	354	
1890	921	4,258,893	1,525	358	24.35
1891	1,011	4,533,217	1,623	358	25.29
1892	1,059	4,781,605	1,713	358	26.11
1893	1,030	4,830,599	1,785	369	26.63
1894	1,024	4,777,687	1,748	366	25.53
1895	1,017	4,875,519	1,810	371	25.88
1896	988	5,065,491	1,907	377	26.88

The savings banks in this country are still largely confined to 13 states, and mainly to the New England and middle states. Massachusetts and New York together have 60% of the total savings deposits in all savings banks, 57% of the total resources, and 60% of the total number of depositors in the whole United States. Official returns by states for 1896 follow in adjoining tables:

What has been, may be.

THE STATES IN DETAIL.

PURELY MUTUAL (or "regular") SAVINGS BANKS, 1896.

Maine.....	52	160,216	56.4	59.4	351
N. Hampsh're	67	162,444	63.2	68.3	389
Vermont.....	40	103,281	32.2	35.0	311
Massach's'ts.	187	1,302,479	439.3	466.4	337
Rhode Island	35	135,252	68.7	72.6	508
Connecticut.	90	346,758	143.2	152.5	412
Total.....	471	2,210,430	803.0	854.2	363
New York....	127	1,695,787	691.8	783.1	407
New Jersey..	26	154,334	39.6	43.8	256
Penn.....	16	282,677	73.9	83.3	261
Delaware....	2	3,034	.8	.9	263
Maryland....	24	156,480	49.1	51.7	313
Total.....	195	2,292,312	855.2	962.8	373
W. Va.....	1	3,873	.3	.3	66
Ohio.....	4	62,088	25.4	27.8	409
Indiana.....	5	14,336	4.0	4.5	276
Wisconsin...	1	1,464	.2	.2	131
Total.....	10	77,888	29.6	32.5	379
Total mut.	677	4,584,503	1,688.0	1,850.0	368

Stock Savings Banks.

NAME OF STATE.	Number of banks.	Number of depositors.	Deposits. Mil'ns dols.	Tot'l res'ces. Mils dols.	Average due each depos.
D. of Col.....	2	1,687	.1	.3	\$72
N. Carolina..	6	13,211	.6	1.4	48
S. Carolina...	7	12,337	4.3	5.4	350
Georgia.....	2	632	.1	.3	98
Louisiana...	5	12,346	2.8	3.5	227
Tennessee...	4	9,779	.9	1.5	101
Total.....	24	48,305	8.7	12.1	181
Ohio.....	7	20,248	8.5	12.1	432
Illinois.....	26	103,828	27.5	65.4	265
Iowa.....	169	77,057	28.2	37.6	362
Minnesota...	14	41,884	10.3	10.8	245
Total.....	216	243,917	75.5	125.9	305
Oregon.....	2	1,631	1.0	1.5	596
California...	57	159,856	131.7	147.8	823
Montana.....	2	3,788	.8	1.9	215
Utah.....	8	21,627	2.3	3.9	106
Total.....	69	186,902	135.8	155.1	726
Total.....	311	480,991	219.0	293.4	455
Aggreg'te	988	5,065,494	1,907.2	2,143.3	376

THE ORGANIZATION OF SAVINGS BANKS

is closely governed by the laws of New York and Massachusetts, the latter being model statutes. These mutual savings banks have no capital stock. All their earnings, after the payment of expenses and taxes and acquirement of reserves, go to the depositors as dividend or interest on deposits. The bank is a corporation of a few individuals, and is self-perpetuating, these members (directors) choosing the successor to any one of their number who drops out by death or for other reasons. Depositors have no voice in choosing the directors—a point for which much can be said both for and against. The officers of such corporations consist of a president, one or more vice presidents, a board of not less than nine trustees, a treasurer and a clerk, and elect as corporate members any citizen of the commonwealth.

These banks are obliged to make very complete annual reports to the state commissioner of savings banks. His salary is paid by the state. He visits every institution at least once a year and makes an examination into its condition and management. No one person's deposit may exceed \$1000 or \$600 for accrued interest.

There has never been any scandal connected with the savings banks in these two states. New Hampshire and Vermont banks lost heavily by buying bonds of irresponsible western loan companies. Some of the stock savings banks at the west have failed under notorious circumstances. They are run primarily to make money for the stockholders; the mutuals are run for the depositors solely.

Stamp Savings Bank System.



The stamp savings bank system, or the penny providence fund, as it is often called, is a system by the use of stamps to enable the poor to save small sums of money.

In many places the stamp method is used in great measure, if not entirely, in connection with the public schools. The managers, usually belonging to some charitable organizations, have stamps printed of the denomination of one, three, five, 10, 25 and 50 cents and one dollar. Frequently the distribution of these stamps among the school children is done by the teacher.

AS USED IN SCHOOLS.

From the central supply office the teachers secure a certain amount in stamps, sometimes as high as \$50. They are given the stamps on credit and turn in the money received with the number of stamps remaining untaken. When a child wishes to save a sum of money he pays say 25 cents to the teacher, who gives him that amount in stamps in any denomination he desires. With the stamps is given a card containing the depositor's name and address. On this card the stamps are pasted. The money is returned to the central office and then placed in the regular savings banks. When the depositor wishes to withdraw his deposit he presents the stamps to the teacher or at the central office and is given in cash the amount of money the stamps on his card represent. Sometimes a week's notice is required before drawing the deposit to prevent any irregularity. At some savings banks the arrangement is made so that the stamps on presentation are at once credited

Heaven protects the just

with their face value and the child receives without cost a savings bank book, so becoming a depositor in the savings bank. The children are encouraged to save only small amounts by the stamp system and then become a depositor in the regular banks. The same method is pursued when the system is used among people generally.

RAPID GROWTH OF THE SYSTEM.

The stamp saving system had been in operation in England and in Continental Europe some years when it was introduced 12 years ago by J. H. Thiry of Long Island City, formerly a school commissioner. It was begun in one school and soon introduced in others. It is now adopted in 280 schools in 62 towns scattered throughout six states. Its membership has reached the number of 451,211 and 158,197 stamp holders have retained their deposits. During the 12 years the deposits of these school funds amounted to \$73,082, of which \$20,222 has been allowed to remain on deposit. Now the system is used extensively in large cities, including New York, Boston, Montreal and Denver.

ITS SUCCESS IN NEW YORK.

In New York the success has been very marked. It grew out of certain demands that used to be made on the Friendly Visitors of the Charity organization society by the poor people to save their money for them. Applications were constantly received from women to retain sums as small as 10 or 15 cents to keep from their drunken husbands. The plan of starting the system in New York originated with Otto T. Barnard and Abram S. Hewitt, and a dozen other benevolent men heartily co-operated in establishing the banks. Stations were appointed and the central station is at the corner of 22d street and Fourth avenue. Anyone is at liberty to make a deposit on establishing his identity. Among those who regularly patronize these banks are bank clerks and newspaper men. Branches have also been established in the large retail stores and are patronized by many shop girls. Last year despite the hard times the average account amounted to 59 cents and the annual expense of running these banks in New York was only \$1069. It is important to note that considerable opposition was aroused against the provident savings banks by the retail candy dealers, who noted a great loss in trade after they were established.

SMALL SAVINGS SAFELY KEPT.

In Boston the system is very popular and a great number of stamps are sold. They are disbursed from stations appointed for the purpose and the money necessary to conduct the fund is raised by subscription. The system is not, however, in Boston especially connected with the schools. It is universally commended for its safety and simplicity.



Stamps for Savings. Used at Springfield, Mass.

AS TO TAXATION.

The Tax on Inheritance.

Twenty states now have inheritance taxes in one form or another. They are California, Connecticut, Delaware, Illinois, Iowa, Louisiana, Maine, Maryland, Massachusetts, Minnesota, Montana, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Tennessee, Vermont, Virginia and West Virginia. Five years ago the tax was found in only nine states, namely, Pennsylvania, Maryland, Delaware, New York, West Virginia, Connecticut, Massachusetts, Tennessee, and New Jersey.

In 1893 there were added Ohio, Maine, California and Michigan. In that year the law in Michigan was annulled because of a provision in the state constitution; an inheritance tax bill was introduced before the legislature of 1897, but failed to become a law. In 1894 Louisiana revived her foreign tax on foreign heirs, Minnesota adopted a constitutional amendment permitting a progressive inheritance tax and such a law was passed by that legislature this year.

Ohio added to her collateral inheritance tax a progressive tax on collateral successions. The direct inheritance tax law has been declared invalid by the supreme court of Ohio because of its classification feature, but the collateral inheritance tax law has been sustained, since it does not contain the graded tax provision. An attempt has been made to amend the direct inheritance law at the last session of the legislature, but it failed of passage.

In 1895 Illinois and Missouri adopted progressive inheritance tax laws and Virginia re-adopted an old proportional tax. In 1896 Iowa adopted in part the inheritance tax law recommended by her revenue commission and the legislature of Vermont passed an inheritance tax law. This year Montana and North Carolina have passed such laws. Bills were introduced this year in the Colorado and Utah legislatures, but failed to become laws.

A remarkable agitation took place last spring in New York state over a bill for a progressive inheritance tax, which was characterized by the high rates imposed on large personal estates passing to heirs and for the graduation of those rates. The rate on personal property passing to heirs of the blood began with 1 per cent on amounts above a certain minimum and rose gradually to 10 per cent on estates of \$4,000,000 and over. The rate on personal property passing to collateral heirs began at 5 per cent and increased to 15 per cent on estates of \$3,000,000 or over. The promoter of this bill, which was the most radical act of the kind ever before a legislature in this country, was Comptroller James A. Roberts of New York, who showed in an able article in the May Forum the extraordinary way in which large personal estates in New York had escaped taxation. The measure was warmly indorsed by the renowned authorities on taxation, Profs. Edwin R. A. Seligman and Max West of New York, and received a unanimous vote in the lower legislative branch and a nearly unanimous vote in the senate. The bill was, however, vetoed by Gov Black on the ground that the tax was not uniform.

The United States government abolished all inheritance taxes in 1870, but in the first session of the 55th congress this year was introduced a resolution by Mr Stephens of Texas, proposing an amendment to

A hero is only known in time of misfortune.

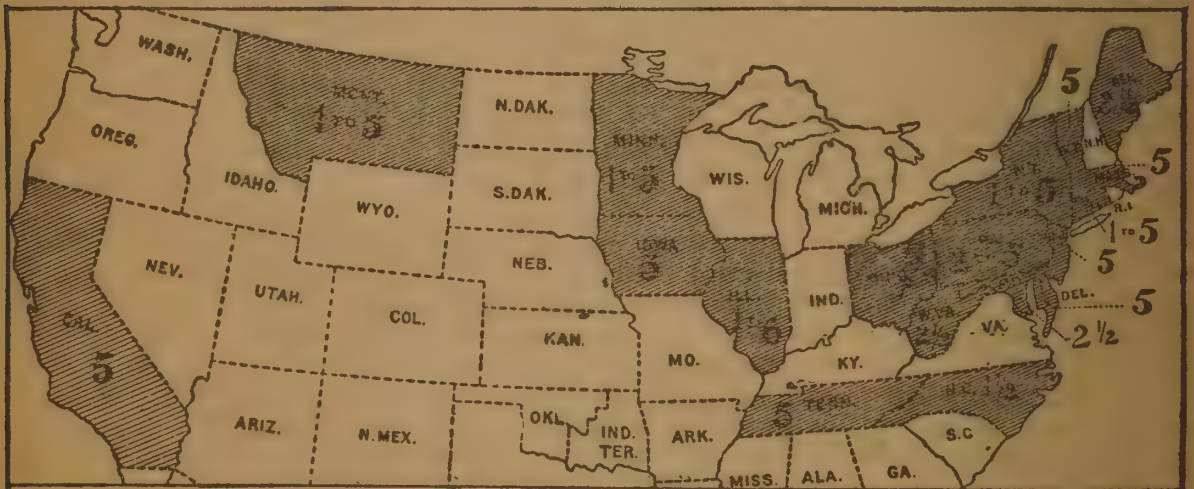
the constitution authorizing the levy of a tax on incomes and inheritances whose cash value shall equal or exceed \$50,000. In 1864 the rate of the internal revenue tax on legacies was fixed as follows:

	Per cent.
Lineal issue, lineal ancestors, brothers and sisters.....	1
Descendants of a brother or sister.....	2
Brothers and sisters of a father or mother, and descendants thereof.....	4
Brothers and sisters of a grandfather or grandmother and descendants thereof.....	5
Other collateral relatives, strangers in blood and bodies politic and corporate.....	6

There was also a tax on probate of will and letters of administration, the rate being 50 cents to estates not over \$2,500 and rising by a graduated scale to \$20 for estates between \$100,000 and \$150,000, and for every additional \$50,000 or fraction thereof \$10 more. The receipts of these taxes were as follows:

Fiscal Year.	Legacy Tax.	Succession Tax.	Total
1863	\$56,593		
1864	311,161		
1865	506,752	\$39,951	\$546,703
1866	924,824	246,155	1,170,979
1867	1,228,745	636,570	1,865,315
1868	1,518,388	1,305,024	2,823,411
1869	1,254,837	1,189,756	2,434,593
1870	1,672,583	1,419,242	3,091,825

During the six years the taxes were in force, they paid from one-fourth of 1 per cent to 1 2-3 per cent of the total United States revenue.



MAP OF STATES THAT TAX INHERITANCES, SHOWING ALSO THE RATES PER CENT. OF SUCH TAXES.

THE INHERITANCE TAX IN EACH STATE.

The status of the inheritance acts in the states which have adopted or recently considered them is as follows:

CALIFORNIA passed its present law in 1893, the proceeds being applied to the state school fund. The rate is 5 per cent and estates of less than \$500 are exempt. The heirs exempt are the father, mother, husband or wife, brothers and sisters, lineal descendants, adopted children, sons-in-law and daughters-in-law of the decedent, the corporations and institutions exempt by law from taxation. The New York law, as it stood before the extension of the tax to direct heirs, is closely

High buildings have a low foundation.

followed, including provisions for the appraisal of estates, payment of the tax, etc. The pay of the appraisers is \$5 a day and the interest in case of delay in the settlement of the estate is fixed at 7 per cent charged 18 months after the decedent's death.

COLORADO does not have an inheritance tax law; such a law was introduced in the legislature this year, but failed to pass. Such failure, however, does not indicate an expression of disapproval by the legislature, but it failed through lack of time. There is every likelihood that the state will have such a law in a few years. The progressive act proposed provided for a tax on estate for the use of father, mother, sons-in-law and daughters-in-law, children and adopted children, lineal descendants, of 1 per cent on bequests in excess of \$2,000 received by each person. In all other cases the rate was provided as follows:

	Per cent.
\$10,000 or less.....	3
10,000 to 20,000	4
20,000 to 50,000.....	5
Over 50,000.....	6

Provided an estate of less than \$500 is not subject to any tax. The taxes were made payable to the county treasurer. Interest of 6 per cent was to be charged, if not paid within six months of decedent's death, but if paid within that time, there was to be a discount of 5 per cent. The proceeds were to go to the state. Appraisers were to be paid \$3 a day for their services. The delinquent executor or administrator would have been prosecuted in the county courts by the district attorney. County treasurers were allowed fees of 2 per cent of the taxes.

THE CONNECTICUT LEGISLATURE passed a new law in 1867 relating to the inheritance tax, and it was approved by the governor. The bill provides that real estate of persons who have died shall pay a tax of one-half of 1 per cent on legacies to parents, husband, wife or lineal descendants and adopted children, and 5 per cent on legacies to collateral kindred or strangers in blood, corporations or societies. Estates of \$10,000 are made exempt. It is expected that the revenue which will accrue will amount to \$200,000 and render unnecessary levying a state tax of 1 per cent on the grand list of towns, which has been bitterly opposed. In 1889 a law was passed by which bequests except to near relatives and for charitable purposes were subject to a tax of 5 per cent above the value of \$1,000. It was payable to the state treasurer. In 1894 the yield of this tax was \$74,149.

DELAWARE'S inheritance tax was passed in 1869, the rate being at first 3 per cent, but in 1871 this rate was replaced by a relationship scale in which direct heirs are not included. This tax was repealed in 1883, except as to strangers in blood, on which the per cent was five and since then the law has had little effect.

THE ILLINOIS STATUTE went in force July 1, 1895, and has been sustained by the supreme court. The tax is paid to the treasurers of the counties for the use of the state. Its provisions are as follows: When the beneficial interests pass to any father, mother, husband or wife, child, brother, sons and daughters-in-law, child, adopted children, and lineal descendants, the rate is 1 per cent of every \$100 received by such person and at the same rate for any less amount, except that estates less than \$20,000 are exempt and the tax is levied only on the excess of \$20,000 received by each person. When the interests pass to any uncle, aunt, niece, nephew or any lineal descendant of the same, the

rate is 2 per cent on every \$100 received by each person on the excess of \$2000 so received. In all other cases the rate is as follows:

	Per cent.
\$10,000 or less.....	3
10,000 to 20,000.....	4
20,000 to 50,000.....	5
Over 50,000.....	6

Estates under \$500 are not subject to the tax.

IOWA, by the last general assembly of 1897, enacted a collateral inheritance law, which required the payment of a tax of 5 per cent on all estates above \$1,000 which pass directly or indirectly to any collateral heirs except such as may be given to religious, benevolent or charitable societies, hospitals, etc.

LOUISIANA has a 10 per cent tax on foreign heirs, legatees and dowers on the value of the property situated in the state, and received by them from the succession. The law was first passed in 1828, repealed in 1877 and re-enacted in 1894. The United States supreme court has sustained this law, but the Louisiana courts have held that the tax was rendered inoperative so far as French heirs were concerned, by a treaty of 1853.

MAINE'S law dates from 1893, when the legislature adopted the recommendation of the tax commission. The act imposes a collateral inheritance tax of $2\frac{1}{2}$ per cent on inheritance over \$500. The Connecticut law of 1889 is closely followed and in that law the relatives exempt are the decedent's father, mother, husband or wife, lineal descendants, adopted children and their descendants, sons and daughters-in-law, but there is no exemption of bequests for benevolent purposes. Payments are made direct to the state treasurer.

MARYLAND'S law dates from 1845 and, only slightly amended, it was engrafted in the code of 1888. The only exemptions were those in favor of the decedent's father, mother, wife, children and lineal descendants and all estates of less than \$500,000, in all other cases the tax was $2\frac{1}{2}$ per cent. Accompanying the collateral tax was a tax of 10 per cent on commissions of executors and administrators. In 1880 surviving husbands were made exempt. Commissions are forfeited if payment is not made within 13 months from the date of administration. There is provision for appraisers. There is no exemption in favor of bequest to charitable institutions. Together, the collateral inheritance and tax on commissions pay about 5 per cent of the state's expenses. In 1892 the yield of commissions was \$58,425, and the inheritance tax \$114,009. In 1892 the inheritance tax amounted to \$62,636.

THE LAW OF MASSACHUSETTS was enacted in 1891. In 1889 a special committee of the Boston executive business association recommended a collateral inheritance tax and also a tax of $2\frac{1}{2}$ per cent or more on direct inheritance to replace the personal property tax. The law imposes a 5 per cent tax on estates of more than \$10,000 when legacies of \$500 or over. The relatives exempt are the decedent's father, mother, husband or wife, lineal descendants, brothers and sisters, sons-in-law and daughters-in-law, adopted children and their descendants and charitable and public bequests. The tax goes to the state. Interest of 6 per cent is charged. There is a fine not exceeding \$1,000 for

Honesty lasts longest.

failure to pay the tax. In 1894 the revenue was \$239,368; 1895, \$431,107; 1896, \$278,918.

MICHIGAN passed an inheritance tax law in 1893, which was declared unconstitutional by the supreme court. A bill was introduced before the legislature of 1897 but failed to become a law.

It provided for a tax of 5 per cent, except when the property was bequeathed to direct and collateral puro, in which case property under \$5,000 was made exempt and the rate fixed was 1 per cent. The tax was made payable to county treasurer; if paid within six months from the accruing thereof a discount of 5 per cent was charged, but if not paid within 18 months, interest of 6 per cent was charged. Appraisers could be appointed by the probate court. The county treasurers were allowed a fee of 1 per cent on the taxes, which were to be forwarded to the state treasurer, and applied to the payment of the interest on the primary school, university and other educational funds, and the interest and principal of the state debt, in the order named.

MINNESOTA having decided the inheritance tax question by the referendum at a general election and having passed a constitutional amendment, the legislature passed such a law in 1897 and it went into effect July 1, '97. The law provides for a tax of 5 per cent on personal property of \$5000 or over bequeathed, except when it passes to direct or collateral relatives, in which cases the rate is 1 per cent, and property under \$10,000 is exempt, with the usual stipulation for the collection of the tax, appraisers and its payment to the county treasurer. There is allowed a discount of 5 per cent when paid within six months and interest of 7 per cent within 18 months of the accruing thereof, except when litigation takes place, in which the rate of interest is 6 per cent and if not paid after the litigation is removed, 10 per cent interest is charged. The tax goes to the state revenue fund.

MONTANA passed a direct and collateral inheritance tax in 1897. For such relatives and legatees the tax on all property bequeathed is 1 per cent, estates under \$7500 are exempt and in all other cases the rate is 5 per cent. If paid within six months a discount of 3 per cent is allowed, but if not so paid 10 per cent interest is charged except where litigation takes place or there is unavoidable delay, when the rate of interest is 7 per cent after the expiration of 18 months after the death of the decedent. Appraisers who act improperly are liable to fine and imprisonment. Sixty per cent of the taxes thus levied are to be paid to the state treasurer for the use of the general fund and 40 per cent to the county treasurers for the use of the general school fund.

NEW JERSEY'S law of 1892, providing for a 5 per cent collateral inheritance tax, was amended in 1892, exempting charitable and benevolent bequests. The exempt relatives are decedent's father, mother, husband or wife, brothers and sisters, children and lineal descendants, sons-in-law and daughters-in-law. All estates of less than \$500 are also exempt. If the tax is paid within six months of the decedent's death there is a discount of 5 per cent; otherwise interest is charged, at 10 per cent when payment is not made within a year and at 6 per cent when it is made within the first year, or when there is unavoidable delay in the settlement of the estate. If not paid within the first year bonds are required of the personal representatives. Payments are made directly to the state treasurer, who has to report semi-annually to the comptroller. In 1894 the tax brought a revenue of \$204,695.

NEW YORK have taken the lead in inheritance tax laws and its laws has been closely followed by other states. The relatives who now pay 1 per cent on personal estates of the value of \$10,000 or more are

Conduct and courage lead to honor.

the decedent's father, mother, husband or wife, children and lineal descendants, brothers and sisters, daughters-in-law, sons-in-law and adopted children. All other persons pay 5 per cent if the estate amounts to \$500 or more. Charitable and religious organizations are exempt. A discount of 5 per cent is allowed when the tax is paid within six months and when it is not paid within 18 months, 10 per cent is charged, except in cases of unavoidable delay, when the rate is 6 per cent. The largest amounts have been received from the following estates: Jay Gould, \$700,000; Cornelia M. Stewart, \$300,410; William G. Hunt, \$250,000; Henrietta A. Henox, \$234,127; Samuel J. Tilden, \$147,283.

The yield of the tax in recent years has been:

1890.....	\$1,117,638
1891.....	980,267
1892.....	1,786,218
1893.....	3,071,687
1894.....	1,688,954

NORTH CAROLINA's law is as follows: The clerk of the superior court in each county shall require every administrator and every executor, upon the filing of the annual reports required by law of such administrators or executors, to deposit in the office of the clerk, to be turned over in ten days to the sheriff or tax collector of the county, the following taxes: Upon all legacies and inheritances devised or descended to persons in the direct line, two-thirds of one per cent, and all such legacies and inheritance devised or descending collaterally (save and except such as are for charitable uses), one and one-half per cent, and no administrator or executor shall be permitted to file his final account unless and until such taxes are paid or discharged.

IN OHIO the direct inheritance law passed in 1894 has been declared invalid by the state supreme court because of its classification feature, but the collateral tax law has been sustained. This provides for a tax of 5 per cent of the value of all property above \$200, except such as goes to the use of the father, mother, husband, wife, brother, sister, niece, nephew, lineal descendants and adopted children or their lineal descendants. Seventy-five per cent of such tax goes to the state and the remainder to the county.

PENNSYLVANIA passed a direct inheritance tax law this year on personal property, the rate being 2 per cent and personal property to the amount of \$5000 is exempt. A discount of 5 per cent is allowed if paid within three months after the death of the decedent but if not paid within a year interest of 6 per cent is added. The tax goes to the state. Pennsylvania was the first state in the union to levy an inheritance tax. The collateral tax was introduced in 1826 and with various amendments has remained in force to this time. The tax was increased to its present rate, 5 per cent, in 1846, in 1849 the exemptions were extended to include daughters-in-law and in 1870 the proceeds were transferred to the general fund. The courts have held that the exemptions do not include a grandmother, adopted child or a son's widow who has remarried. In 1894 the yield of the tax was \$869,179.

TENNESSEE has a 5 per cent collateral inheritance tax, which was passed in 1891, and amended in 1893, so that grandchildren were added to the exemption of the decedent's father and mother, husband or wife, children, brothers and sisters, and sons-in-law and daughters-in-law.

Honor the tree that gives you shelter.

Gifts of small amounts and for charitable purposes are not exempt. Payments are made to the clerks of county courts and go to the state revenue.

IN UTAH, which does not have an inheritance tax law, a bill was introduced in the house of the legislature in 1897 but did not become a law.

VERMONT passed a collateral inheritance tax law in 1896, excepting bequests to the decedent's father, mother, husband or wife, lineal descendants, adopted children and charitable institutions. The rate is 5 per cent on property valued over \$2000 after debts are paid.

VIRGINIA revived in 1895 its old proportional tax. As early as 1687 the settlement of estates in Virginia was accompanied by "an enormous fee" of 200 pounds of tobacco and cask. In 1870 the rate was made \$1 on estates not exceeding \$1000, or 10 cents additional for every \$100 thereof above \$1000, or about one-tenth of one per cent. The collateral inheritance tax was 6 per cent when in 1884 it was repealed.

WEST VIRGINIA law, passed in 1887, closely follows that of Maryland. All estates, real and personal, passing from any person who may die seized and possessed thereof, being in the state, to take possession thereof on the death of the grantor, are subject to a tax of $2\frac{1}{2}$ per cent on every \$100, except that to and for the use of the father, mother, husband, wife, children and lineal descendants of the grantor. The tax is paid to the clerk of the county court for the use of the state. The receipts have been meager, owing to the failure of the law to prescribe a definite time within which the tax must be paid, or adequate penalties for delay.

THE INHERITANCE TAX ABROAD.

All the important countries of Europe employ this method of taxation; and in the most democratic countries of the world outside of the United States, progressive rates make it an important source of revenue.

CANADA—In all three provinces of Canada the tax rises to 10 per cent for bequests to strangers in blood. In Ontario all estates under \$10,000 and individual shares under \$500 are exempt. Direct heirs are taxed when the whole estate exceeds \$100,000. A tax of $2\frac{1}{2}$ per cent is levied on the decedent's father, mother, husband or wife, children, grandchildren, daughters-in-law and sons-in-law when the estate is between \$100,000 and \$200,000, and 5 per cent when over \$200,000. More remote relatives pay 5 per cent and others 10 per cent. Nova Scotia exempts estates not over \$25,000 inherited by immediate relatives and estates not over \$5000 in other cases. Nearest relatives pay $2\frac{1}{2}$ per cent over \$25,000 and 5 per cent over \$100,000. Less remote relatives pay 5 per cent and others 10 per cent. Quebec taxes direct relatives 1 per cent over \$10,000, 3 per cent on brothers and sisters, other collateral relatives 6 and 8 per cent and strangers in blood 10 per cent.

ENGLAND reformed its taxation laws in 1894, adopting finally the graduated scale or the system of progressive taxation. The present law begins with a rate of 1 per cent and increases in 12 successive stages until it reaches 8 per cent. Estates under \$500 are exempt. From \$500 to \$2500 the rate is 1 per cent, but arranged so that estates under \$1500

Great honors, great cares.

make a fixed payment of \$7.20 while estates between \$1500 and \$2500 are charged a fixed sum of \$12. Above \$2500 the rate increases until the maximum rate of 8 per cent is reached in estates over \$5,000,000. But beside, there is still a legacy duty of 3, 5, 6 and 10 per cent, graded according to relationship, on personal property going to collaterals and also a succession duty which is applicable only to real estate. These together form a collateral inheritance tax. Estates, however, not exceeding \$5000 are subject only to the succession duty. So the rate of the inheritance tax varies from 1 to 18 per cent of the value of the property. The death duties have yielded about \$50,000,000, and the new system is expected to increase the yield to \$67,500,000, of which \$12,500,000 will go to reduce local taxation.

AUSTRALIA has its chief source of revenue from inheritance taxes. The rates are progressive in nearly all the colonies, rising to 10 per cent in Victoria, 13 per cent in New Zealand and 20 per cent in Queensland. Usually not more than two classes of relatives are distinguished and direct heirs are usually taxed one-half the rates which apply to more distant relatives.

FRANCE for many years has had an inheritance tax payable at the following rates:

	Per cent.
The direct line.....	1.25
Husband and wife.....	3.75
Brothers and sisters, uncles and aunts, nephews and nieces.....	8.125
Great uncles and great aunts, grand nephews and grand nieces, and cousins german.....	8.75
Relatives between the fourth and thirteenth degree.....	10.
All other persons.....	11.25

There is also a uniform registration tax and state taxes, so that the government often takes as much as 15 or 20 per cent of the value of a succession.

HOLLAND has the credit of originating many existing inheritance tax laws. The rates are as follows:

	Per cent.
Direct descendants, and husband and wife with living issue.....	1
Direct ancestors.....	3
Brothers and sisters, and husband or wife without offspring.....	4
Uncles and aunts, nephews and nieces, great uncles and great aunts, grand nephews and grand nieces.....	6
More distant relatives and strangers, and all collateral relatives.....	10

IN SWITZERLAND are found the highest proportional taxes in the world. Direct descendants are nearly everywhere exempt. The maximum rate varies from one-half of 1 per cent to 20 per cent. In several cantons the proceeds are set aside for educational and charitable purposes. Deduction for debts is allowed everywhere except in Zurich.

IN GERMANY, although the inheritance tax is found in almost all the states of the empire, the rates are not progressive but are graduated according to relationship, direct heirs being exempt and the maximum rates varying from 3 to 10 per cent. In Austria the present law taxes all successions and gifts. The rate for landed property is in every case 11 per cent more than for personal property, which is as follows: Direct line, husband and wife 1 per cent; servants on bequests not exceeding \$190, 1 per cent; collateral relatives not more distant than cousins 4 per

cent; all other persons, 8 per cent. Sons-in-law, daughters-in-law and step-children are regarded as direct heirs.

ITALY has levied these rates since 1888, which have produced an amount of revenue that is surprising in view of the popular idea as to the poverty of the Italian people:

	Per cent.
Lineal descendants and ancestors.....	1.36
Husband and wife.....	3.9
Brothers and sisters.....	6.5
Uncles, nephews, great uncles and grand nephews.....	7.8
Cousins german.....	10.4
Other relatives to the tenth degree.....	11.7
All other persons.....	13.
Charitable bequests are not exempt, but they are taxed 6.5 per cent.	

IN SPAIN and Spanish America, rates are as follows:

	Per cent.
Legitimate ancestors and descendants and personal property assigned by law to husband and wife.....	1
Natural ancestors and descendants.....	2
Husband or wife.....	3
Collateral relatives.....	4-9
Strangers acquiring real estate.....	10

A tax of 12 per cent is charged on discrimination in favor of the eldest son.

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REFORMS IN DIRECT TAXATION.

Table Showing Inequalities of Taxation.

The "true value" or fair selling price, or average market worth, of all real and personal property was carefully ascertained by the census of 1890. Probably the true value of real estate was obtained with a fair degree of accuracy, but it is likely that the value of personal property is underrated. The following table shows that real estate constitutes from 43% of all property in Alabama to 68% in New York. The amount of personalty and realty assessed for taxation is only 12% of its true value in Idaho, about 16% in Illinois, and 77% in Massachusetts. Apparently, therefore, more than three-quarters of the true value of all property in Massachusetts is taxed, while in Illinois only about one-seventh of the true value of all property is taxed.

	% real estate is of total.	Per c't of all prop'y taxed.	True val. per capita.		% real estate is of total.	Per c't of all prop'y taxed.	True val. per capita.
Oklahoma.....	70.49	.....	\$781	Alabama.....	43.57	41.58	412
Indian Territory...	64.61	.....	.....	Washington.....	67.88	28.61	2,177
Wyoming.....	54.48	19.16	2,797	Connecticut.....	65.07	42.98	1,119
Delaware.....	60.18	37.69	1,043	Georgia.....	48.73	48.78	464
Nevada.....	51.14	14.06	3,941	Virginia.....	54.58	48.15	521
Arizona.....	50.64	14.85	3,168	Tennessee.....	54.48	43.11	502
Idaho.....	45.99	12.39	2,464	Maryland.....	68.66	48.78	1,041
New Mexico.....	49.14	18.68	1,507	Colorado.....	52.66	19.25	2,780
Vermont.....	52.11	61.04	799	Kentucky.....	60.72	46.71	631
New Hampshire...	54.17	80.91	863	Nebraska.....	55.53	14.48	1,205
North Dakota.....	52.20	26.17	1,844	New Jersey.....	66.49	61.85	1,000
Dist. of Columbia..	83.40	44.62	1,491	Minnesota.....	61.13	34.80	1,300
Utah.....	52.41	30.37	1,681	Kansas.....	52.22	19.32	1,261
Florida.....	50.22	23.56	995	Wisconsin.....	59.91	31.48	1,087
South Carolina.....	44.03	41.97	348	Michigan.....	54.86	42.87	1,001
South Dakota.....	48.67	32.97	1,293	Indiana.....	61.48	40.90	956
West Virginia.....	56.66	42.59	575	Texas.....	57.96	37.09	942
Montana.....	45.85	24.92	3,429	Iowa.....	55.16	22.70	1,196
Mississippi.....	45.88	36.71	352	Missouri.....	60.00	37.03	895
Arkansas.....	51.38	38.39	403	California.....	65.95	43.46	2,097
Maine.....	51.94	63.20	740	Massachusetts....	67.72	76.83	1,252
Louisiana.....	54.91	47.31	443	Ohio.....	64.03	45.00	1,076
Rhode Island.....	66.40	63.82	1,459	Illinois.....	65.01	15.98	1,324
North Carolina....	47.76	40.28	361	Pennsylvania.....	61.08	42.96	1,177
Oregon.....	64.39	28.12	1,882	New York.....	67.83	44.14	1,430

The feeling is widespread that present methods of direct taxation are too often unfair, illogical and unjust. It is a common complaint that many forms of personal property escape their fair share of taxation, to the consequent overburdening of real estate, thus compelling the home owner, farm owner or tenant, as well as the owner of other forms of real estate, to bear an undue proportion of the public burden. A vast array of facts has been compiled by sundry authorities to substantiate this view.

The remedy is believed by one school of economists to lie in better laws and their more strenuous enforcement regarding the assessment of personal property for taxation. This policy has been applied in Ohio, Pennsylvania, and Vermont quite thoroughly during the past few years. In Massachusetts, it has been stanchly advocated by farmers through their grange organizations. They have thus far defeated the efforts to exempt certain stocks, bonds and other personalty, and the whole

Whatever is best administered, is best.

problem in that state is now being considered by a commission of experts whose report will be considered by the legislature in 1898. It favors (1) an inheritance tax of 5 per cent on realty and personalty, the revenue to go to the towns and cities, one-half in proportion to population, one-half in proportion to assessed valuation; (2) a tax on all rentals above \$400 a year; (3) abolition of all taxes on stocks, bonds, etc, 1 and 2 making good the loss of revenue from 3; (4) state to assume county expenses.

The sentiment generally prevails that higher direct taxes should be levied on the earnings or franchises of steam and electric railways, telephone and telegraph companies, and other quasi-public corporations. There is also a disposition in other states to adopt the Massachusetts system of compelling all common corporations to pay taxes direct to the state on the sworn exhibit to the state tax commissioner of their financial condition, the shares in such corporations being then exempted from taxation within the state. There is bitter opposition to the theory that taxes such shares in the town where the owner resides, if in another state.

THE SINGLE TAX IDEA

is strongly advocated by a limited number as the simplest and most just solution of the problem. It is opposed by many farmers and other real estate owners who fear it will add to the tax on land. They maintain that real estate already bears on an average four-fifths of the taxes, and cannot reconcile themselves to the possibility of abolishing the assessment of personal property and compelling the tax on land values to compensate for the consequent loss in revenue.

The Single Tax League, Henry George, chairman, has adopted the following official statement, which fully explains its principle:

We assert as our fundamental principle the self-evident truth enunciated in the Declaration of American Independence, that all men are created equal and are endowed by their Creator with certain inalienable rights.

We hold that all men are equally entitled to the use and enjoyment of what God has created and of what is gained by the general growth and improvement of the community of which they are a part. Therefore, no one should be permitted to hold natural opportunities without a fair return to all for any special privilege thus accorded to him, and that that value which the growth and improvement of the community attaches to land should be taken for the use of the community; that each is entitled to all that his labor produces; therefore, no tax should be levied on the products of labor.

To carry out these principles, we are in favor of raising all public revenues for national, state, county and municipal purposes by a single tax upon land values, irrespective of improvements, and all the obligations of all forms and direct and indirect taxation.

Since in all our States we now levy some tax on the value of land, the single tax can be instituted by the simple and easy way of abolishing, one after another, all other taxes now levied, and commensurately increasing the tax on land values until we draw upon that one source for all expenses of government, the revenue being divided between local governments, state government, and the general government, as the revenue from direct tax is now divided between the local and state governments, or by a direct assessment being made by the general government upon the states and paid by them from revenues collected in this manner.

THE SINGLE TAX WOULD:

1. Take the weight of taxation off the agricultural districts, where land has little or no value irrespective of improvements, and put it on towns and cities where bare land rises to a value of millions of dollars per acre.

2. Dispense with a multiplicity of taxes and a horde of tax-gatherers, simplify government and greatly reduce its cost.

3. Do away with the fraud, corruption and gross inequality inseparable from our present methods of taxation, which allow the rich to escape while they grind the poor.

4. Give us with all the world as perfect freedom of trade as now exists between the states of our Union, thus enabling our people to share through free exchanges in all the advantages which nature has given to other countries, or which the peculiar skill of other people has enabled them to attain. It would destroy the trusts, monopolies and corruptions, which are the outgrowth of the tariff.

5. It would, on the other hand, by taking for public use that value which attaches to land by reason of the growth and improvement of the community, make the holding of land unprofitable to the mere owner and profitable only to the user. It would thus make it impossible for speculators and monopolists to hold natural opportunities unused or only half used, and would throw open to labor the illimitable field of employment which the earth offers to man. It would thus solve the labor problem, do away with involuntary poverty, raise wages in all occupations to the full earnings of labor, make overproduction impossible until all human wants are satisfied, render labor-saving inventions a blessing to all, and cause such an enormous production and such an equitable distribution of wealth as would give to all comfort, leisure and participation in the advantages of an advancing civilization.

With respect to monopolies, other than monopoly of land, we hold that when free competition becomes impossible, as in telegraphs, railroads, water and gas supplies, etc., such business becomes a proper social function, which should be controlled and managed by and for the whole people concerned through their proper government, local, state, or national, as may be.

Property and Taxes. (Census 1890.)

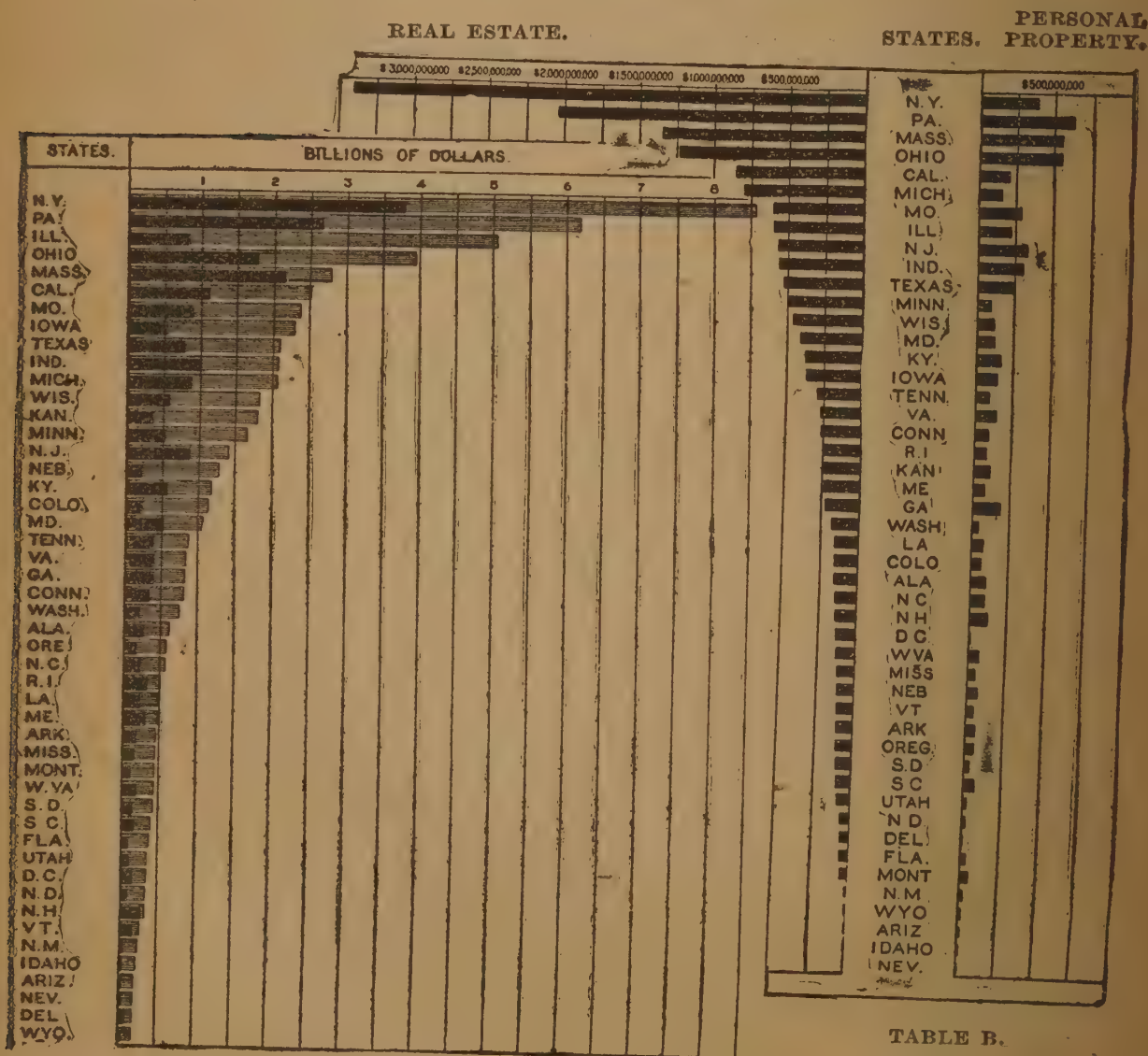


TABLE A.

TABLE B.

In table A, the black lines show assessed valuations by states, and shaded lines show the actual census valuation. Table B shows the ratios of real estate and personal property by states by assessed valuation.

There are no miracles in politics.

The Facts About the Tariffs.

The table on the succeeding pages, compiled from official sources, is perhaps the most satisfactory brief comparison of its kind ever presented to the popular reader. Besides comparing rates in detail for the three tariffs, it also shows the equivalent ad valorem rates—that is, the per cent of the average import value of any article that the duty amounts to. The Dingley ad valorem is figured on the basis of the average values of the imports in the fiscal year ended June 30, 1896. The amount and value of imports under the Wilson bill are given for the fiscal year ended June 30, 1895, as being fairer to it than 1897, when the import trade was disturbed by pending changes. So, too, 1893 is selected as fairest to the McKinley bill, as it was before the low tariff agitation again affected imports, and was sufficiently long after the McKinley bill went into operation to be little affected by the large imports just prior to Oct 1, 1890. This large table is compiled from official comparisons and covers most of the articles of general interest.

A summary of the average results of the tariffs of 1883, McKinley and Wilson, for the two-year periods most free from extraneous influences, is also given in the table below, compiled from U S statistical abstract, 1896, and these results are charted herein (see Pages 210, 211, 212) for the first time. If a more detailed study of the different items of each tariff is desired, the elaborate public documents should be consulted, though these are now comparatively rare.

HOW THE TARIFFS HAVE WORKED.

Class A—Articles of food and live animals.

Class B—Articles in a crude condition which enter into the various processes of domestic industry, such as coal, hops, fibers, iron, wool, etc.

Class C—Articles wholly or partially manufactured for use, as materials in the manufactures and mechanic arts.

Class D—Manufactured goods ready for consumption.

Class E—Art works, liquors, silks, tobacco and other luxuries.

Amounts in millions of dollars.

NAME OF TARIFF, 2 years ended June 30.				NAME OF TARIFF, 2 years ended June 30.				
	Wilson. 1895-'96.	McKinley. 1892-'93.	Tariff of 1883, '84, '85.		Wilson. 1895-'96.	McKinley. 1892-'93.	Tariff of 1883, '84, '85.	
A	Free of duty	\$139	\$248	\$90	Free of duty	\$21	13	11
	Dutiable.....	\$88	37	120	Dutiable.....	\$129	135	115
	Total imports.....	\$228	285	209	Total imports.....	\$150	148	126
	Duties paid	\$31	12	60	Duties paid	\$54	80	55
	Ad valorem per cent.	34.7	31.2	51.0	Ad valorem per cent	41.9	59.2	47.8
	Per cent of total duty	20.2	6.2	32.9	Per cent of total duty	35.6	43.4	30.1
	Per c't of total value	30.6	34.4	33.6	Per c't of total value	20.1	17.8	20.1
B	Free of duty	\$174	166	88	Free of duty	\$9	3	2
	Dutiable	\$20	42	41	Dutiable.....	\$82	97	79
	Total imports.....	\$194	208	129	Total imports.....	\$91	100	81
	Duties paid	\$4	14	11	Duties paid	\$46	54	38
	Ad valorem per cent	21.7	33.6	26.2	Ad valorem per cent	55.8	55.7	49.5
	Per cent of total duty	2.9	7.6	5.8	Per cent of total duty	30.1	29.2	21.2
	Per c't of total value	26.1	25.0	20.7	Per c't of total value	12.2	12.2	13.0
C	Free of duty	\$29	21	12	Free of duty	\$373	451	202
	Dutiable.....	\$52	66	65	Dutiable.....	\$372	378	421
	Total imports.....	\$81	88	87	Total imports.....	\$745	829	623
	Duties paid	\$16	26	18	Duties paid	\$152	185	183
	Ad valorem per cent	31.8	38.2	27.2	Ad valorem per cent	40.9	49.1	43.7
	Per cent of total duty	11.1	13.6	9.7	Per cent free.....	50.0	54.4	32.4
	Per c't of total value	10.9	10.5	12.4	Per cent dutiable....	50.0	45.6	67.6
Total.				Total.				

FACTS ABOUT THE TARIFFS.

1890—McKinley law went into effect Oct. 1st.
1894—Wilson tariff became operative Aug. 28th.
1897—Dingley tariff in effect July 27th.

THE GREAT PROBLEMS OF 1898.

IMPORTATION FOR CONSUMPTION.					Rate of duty in detail.			Equivalent per cent ad valorem.	
Quantities.		Value in thous. dols.		Av. value per unit.	Rate of duty in detail.			Equivalent per cent ad valorem.	
McK. 1893.	Wilson '95.	McK '93	W'n '95	'93	'95	McKinley.	Wilson.	McK.	Wils'n D'y
<i>Chemicals, Oils and Paints.</i>									
Coal tar dyes.....	.....	2,322.0	2,740.0	.....	.....	35%	25%	35	30
Glue, lbs.....	4,735,530	552.0	424.0	\$0.33	\$0.32	1½c to 30%	1½c to 30%	25 to 30	25 to 30
Castor oil, gals.....	286	0.2	9,529.0	0.80	1.21	80c gal	35c gal	100	98
Cottonseed oil, gals...	5,104	1.8	.003	0.36	3.0	10c gal	Free	27	Free
Linseed oil, gals.....	7,406	2.5	83.9	0.34	1.35	32c gal	20c gal	95	20
Olive oil, gals.....	693,594	776,901	953.5	1.30	1.23	30c gal	35c gal	27	29
Man'f'd paints, tons	1,031	901.6	14.0	11.34	13.05	\$6.72 ton	\$3 ton	59	105
Soda ash, lbs.....	388,842	303,235	4.8	0.012	0.008	¼c lb	1½c lb	32	32
Sponges	365,248	320,767	34.7	.....	.....	100%	20%	20	10
Sumac, lbs.....	14,363,922	290.0	236.5	0.02	0.19	1½c lb	10%	20	10
<i>Earth, Earthenware and Glassware.</i>									
Brick, tons.....	14,990	74.0	12.0	4.97	4.81	\$1.25 ton	\$1.25 ton	25	25
Cement, lbs.....	1,133,212,485	3,763.0	3,418.0	0.003	0.003	8c cwt	8c cwt	24	24
Bottles, lbs.....	2,243,470	36.6	19.0	0.016	0.21	1c lb	1c lb	61	33
Marble, cu. ft.....	457,600	758.7	638.0	1.66	1.55	\$1.10 cu ft	85c cu ft	61	49
Marble, man'f'd....	.....	177.3	4.0	.....	.....	50%	50%	50	50
Stone, hewn.....	.....	439.1	292.0	.....	.....	30%	30%	40	30
Stone, unman'f'd...	cu ft 147,416	47.0	32.4	.32	.34	11c cu ft	7c cu ft	34	20
Grindstones, tons..	5,235	66.7	50.0	12.73	14.59	\$1.75 ton	\$1.75 ton	14	10
Slates.....	.....	6.6	6.7	.....	.....	30%	20%	30	20
Slate roofing.....	.....	1.9	4.4	.....	.....	25%	20%	25	20
<i>Metals and Metal Manufactures.</i>									
Iron ore, tons.....	677,301	307,155	419.0	1.76	1.35	75c ton	40c ton	42	30
Pig iron, tons.....	255	899	18.4	25.20	20.46	\$6.72 ton	\$4 ton	27	20
Steel, tons.....	5,831	2,585	91.1	15.63	17.10	\$6.72 ton	\$4 ton	43	23
Iron cotton ties, lbs	1,935,811	11,000	56.3	.026	.011	1.2c lb	Free	40	Free
Tin plates (light) lbs	595,031,538	518,789,180	16,691.0	12,533.0	.028	2.2c lb	1½c lb	80	50
Wire, iron and steel	5,748,015	1,213,523	241.0	44.7	.085	.047	1½c to 50%	.....	.....
Files, doz.....	83,802	78,121	50.0	60.9	1.17	1.96	35c to \$2 doz	.....	.....
Wheels, lbs.....	15,361	7,435	459.0	.030	0.29	2½c lb	1½c lb	43	84
Brass, lbs.....	17,987	15,774	2.7	.15	.13	1½c lb	10%	10	10

Lead, in. ore, lbs....	59,809,044	44,583,181	1,190.0	609.0	.019	.014	1½c lb	¾c lb	1½c lb	75	55	94
Lead, pig, lbs.....	3,975,521	82,781,608	162.0	1,827.0	.041	.022	2c lb	1c lb	2½c lb	49	45	116
Mica, lbs.....	930,707	1,070,127	215.0	169.0	.23	.16	35%	20%	6c lb to 20%	35	20	35
Pins.....			358.0	311.2		30%	25%	25%	35%	30	25	35
Watches.....			1,424.0	845.0		25%	25%	25%	25 to 40%	25	25	35
Ag'l implements....				1.3			45%	45%		45	45	45
Aluminum.....			1.6	2.5			35%	35%	45%	45	35	45
Brass, man'f'd.....			200.0	65.0			45%	35%	45%	45	35	45
Bronze, man'f'd....			107.0	71.0			45%	35%	45%	45	35	45
Carriages.....			516.0	25.0			45%	35%	45%	45	35	45
Clocks.....			123.0	5.0			45%	35%	45%	45	35	45
Copper, man'f'd....			52.0	5.0			45%	35%	45%	45	35	45
Gold and silver "			161.0	92.0			45%	35%	45%	45	35	45
Iron and steel "			1,135.0	563.0			45%	35%	45%	45	35	45
Lead, man'f'd.....			2.0	.7			45%	35%	45%	45	35	45
Machinery.....			3,222.0	1,591.4			45%	35%	45%	45	35	45
<i>Wood and Wood Manufactures.</i>												
Timber, sawed, m ft	17,033	288	63.0	4.0	3.69	12.69	10%	10%	20%	10	10	20
Lumber, unf, m ft	514,939	42,637	6,183.0	530.0	12.01	12.43	\$1 m ft	\$1 m ft	\$1 m ft	8	8	.....
" Other rough, m ft	154,111	10,056	1,440.0	90.0	9.35	8.97	\$2 m ft	\$2 m ft	\$2 m ft	21	22	.....
" Not spe'f'd, m ft				6,311.0		11.63	Free	Free	Free*	.....	.....	.....
Laths, m,	37,441	715,947	462.0	868.0	1.41	1.14	15c m	Free	25c m	10.63	Free	22
Shingles, m,	470,000	427,371	917.0	785.0	1.83	1.84	25c m	Free	30c m	.....	.....	16
Casks or barrels,			.5	1.6			30%	20%	30%	30	20	30
Furniture,			382.0	372.4			35%	25%	35%	35	25	35
<i>Sugar.</i>												
Molasses, gals,	15,490,757	1,896,776	1,992.0	155.0	0.13	.076	Free	Free	3 to 6c gal	.....	.....	19-29
Beet sugar No.16, or below, lbs,	436,287,435	84,023,638	12,845.0	1,885.5	.029	.021	Free	40%	.095+	40	40	75
†Cane sugar, No. 16 or below, lbs,	3,292,496,348	2,487,873,911	101,951	52,795.0	.031	.019	Free	40%	.095+	.....	.....	75
Beet sugar above No. 16, lbs,	32,100,019	24,073,759	1,248.2	835.0	.039	.034	½c lb	½c lb	.0195	13	14	68
Maple sugar, lbs,		472,663		26.3		.056	40%	40%	4c lb	.....	40	58
Glucose, lbs,	195,194	120,302	6.1	3.0	.032	.025	¾c lb	15%	1½c lb	24	15	65
<i>Tobacco.</i>												
Leaf for wrappers, not stemmed, lbs,	2,362,531	4,110,009	1,980.0	4,869.5	.84	1.19	\$2 lb	\$1.50 lb	\$1.85 lb	239	126	153
Other leaf, filler,	16,322,179	15,507,877	6,972.3	6,121.4	.43	.39	35c lb	35c lb	35c lb	82	89	94
Stemmed, lbs,	1,461,192	1,245,557	765.5	556.0	.52	.46	50c lb	50c lb	50c lb	95	112	105
Cigars, etc., lbs.	614,018	449,599	27.53	2,023.4	4.63	4.49	\$4.50 lb, 25%	\$4 lb, 25%	\$4.50 lb, 25%	125	114	124
<i>Agricultural Products and Provisions.</i>												
Horses under \$150,	12,248	11,280	1,164.4	560.6	95.0	48.81	\$30 head	20%	\$30	31.55	20	64
Horses over \$150,	382	11	88.0	3.0	.279	338	30%	30%	25%	30	30	25

Facts About the Tariffs.—Continued.

IMPORTATION FOR CONSUMPTION.										Rate of duty in detail.			Equivalent per cent ad valorem.		
Quantities.					Value in thous. dols.		Av. value per unit.		McKinley.			Wilson.		Dingley.	
McK. 1893.	Wilson, '95.	thous. dols.		Av. value per unit.		'93	'95	McKinley.			Wilson.		Dingley.		
McK.	Wilson, '95.	1893.	'95.	thous. dols.	Av. value per unit.	'93	'95	McKinley.			Wilson.		Dingley.		
Cattle.....	3,098	134,457	23.5	667.0	4.59	4.96	\$2 head	20%	\$2 to \$3.75 hd	McK.	Wils'n D'ly.				
Hogs.....	16,947	1,350	211.2	10.0	12.46	5.86	\$1.50 head	20%	\$1.50 head	43.53	20				
Sheep under 1 year.....	445,813	5,327	1,519.0	12.0	3.40	2.22	75c head	20%	75c head	12	20				
Sheep (act of 1894).....		274,091	639.4			2.33				22	34				
Barley, bu.....	1,780,808	2,074,156	826.0	852.0	0.46	0.41	30c bu	30%	30c bu		20				
Buckwheat, bu.....	342	103,331	1	40.0	0.41	0.38	15c bu	20%	15c bu	65	30				
Corn, bu.....	1,885	16,526	1.3	7.5	0.68	0.45	15c bu	20%	15c bu	37	20				
Macaroni, etc., lbs.	12,804,395	13,775,798	652.1	506.0	0.51	.036	2c lb	20%	1 1/2 c lb	22	20				
Oats, bu.....	21,451	314,337	9.0	80.8	0.42	0.26	15c bu	20%	15c bu	39	20				
Oatmeal, lbs.....	439,574	412,653	24.7	23.3	.056	.056	1c lb	15%	1c lb	36	20				
Rice (cleaned), lbs.	39,073,485	79,467,916	699.0	1,316.4	.018	.017	2c lb		2c lb	18	15				
Rice (unclea'ed), lbs	17,342,405	44,889,054	338.0	656.4	.019	.015	1 1/4 c lb		1 1/4 c lb	112	90				
Rice flour, lbs.....	74,130,512	75,915,009	1,316.0	1,056.0	.018	.014	1 1/4 c lb		1 1/4 c lb	64	55				
Rye, bu.....	144	312	.3	0.6	2.02	1.56	10c bu	20%	10c bu	14	19				
Wheat, bu.....	7,893	19,924	10.0	13.0	1.22	0.62	25c bu	20%	25c bu	5	20				
Butter, etc., lbs ...	72,765	70,640	13.2	12.6	0.18	0.18	6c lb		6c lb	20	71				
Cheese, lbs.....	10,107,506	10,278,997	1,412.0	1,449.0	0.14	0.14	6c lb		6c lb	33	23				
Milk (fresh), gals...	6,265	72,487	1.4	4.7	0.23	.063	5c gal		Free	43	28				
Milk (cond'sed), lbs	1,179,967	984,440	104.4	80.0	.068	0.08	3c lb		2c gal	Free	31				
Sugar of milk, lbs.	98,785	14,117	12.0	1.8	0.12	0.13	8c lb		2c lb	34	25				
Beans, bu.....	1,225,608	1,161,173	1,207.0	1,099.4	0.98	0.96	40c bu	20%	5c lb	65	38				
Cabbages, No.....	328,683	1,213,914	13.1	60.5	0.04	0.05	3c each		45c bu	41	20				
Cider, gals.....	13,145	6,108	3.5	1.3	0.27	0.19	5c gal		3c each	75	68				
Eggs, doz.....	3,295,842	2,685,145	393.0	324.2	0.12	0.12	5c doz		5c gal	19	Free				
Hay, tons.....	104,151	201,725	962.2	1,433.2	9.24	7.01	\$4 ton		5c doz	41	25				
Honey, gals.....	97,706	53,710	43.6	18.9	0.45	0.36	20c gal		\$4 ton	43	29				
Hops, lbs.....	2,657,366	3,027,212	1,101.0	587.8	0.46	0.19	15c lb		20c gal	45	28				
Onions, bu.....	542,539	628,992	421.5	422.5	0.78	0.67	40c bu		12c lb	36	41				
Peas (dried), bu....	328,224	312,928	362.5	362.6	1.16	1.16	20c bu		40c bu	51	30				
Plants, trees, etc.		139.0	.09				20c bu		30c bu	18	17				
Potatoes, bu.....	4,295,946	1,341,536	2,067.0	603.5	0.48	0.45	25c bu	20%	25%	20	20				
Castor beans, bu...	14,761	277,231	149.0	119.3	1.01	0.79	50c bu		25c bu	52	33				
Flaxseed, bu.....	145,935	4,166,914	188.0	4,533.9	1.29	1.09	30c bu		25c bu	49	32				
Garden seeds.....		338.0	400.0						25c bu	23	18				
Pickles, etc.....		461.6	332.7						30%	20	10				
Other vegetables...		269.0	251.0						30%	45	30				
Straw, tons.....	8,890	7,752	30.7	24.5	3.45	3.17	30%		\$1.50 ton	25	10				
Teasels.....			6.6	1.3						30	15				
Sardines (1/4 lb box's)	13,454,536	10,220,549	1,084.0	803.0	.081	.079	2 1/2 c box		2 1/2 c box	30	15				
Mackerel(salt), bbls	84,217	15,641,750	88.2	1,020.7	7.35	0.06	\$2 bbl		30%	30	40				
Salmon (salt), lbs...	908,103	13,955,516	63.7	86.7	0.07	0.06	1c lb		30%	14	12				

Other fish, lbs.....	9,909,522	408.7	431.8	0.041	0.028 3/4 c lb	Free	30%	18 Free	30
Apples, bu.....	358,151	632.2	165.2	0.74	0.44 25 c bu	20%	25 c bu	34	40
Dates, lbs.....	16,248,515	494.6	338.6	0.03	0.021 Free	20%	1/2 c lb	Free	20
Grapes, bbls.....	14,979,191	485.8	335.0	3.06	2.24 60 c bbl	20%	20 c cu ft	20	25
Olives.....	158,870	610.5	325.3	.....	.....	20%	20 c gal	Free	35
Prunes, etc., lbs.....	23,225,821	1,050.0	553.7	0.045	0.036 2 c lb	1 1/2 c lb	2 c lb	44	24
Figs, lbs.....	10,060,090	549.5	574.3	0.055	0.05 2 1/2 c lb	1 1/2 c lb	2 c lb	46	37
Oranges.....	1,446,923	1,237.2	1,856.0	1.19	0.54 13 to 50 c pkg	8 c cu ft	1 c lb	15	33
Lemons, med. p'k'ge	2,604,217	4,949.0	1,035.3	1.90	1.52 25 c pkg	25 c pkg	1 c lb	13	33
Raisins, lbs.....	23,598,985	1,125.5	593.1	0.048	0.043 2 1/2 c lb	1 1/2 c lb	2 1/2 c lb	52	58
Currents, lbs.....	33,166,364	1,185.5	250.5	0.036	0.016 Free	1 1/2 c lb	2 c lb	Free	120
Sweetmeats, etc.....	.....	780.4	479.3	.....	.....	30%	35%	35	35
Almonds, lbs.....	2,780,011	270.7	281.3	0.097	0.067 5 c lb	3 c lb	4 c lb	51	71
Alm'ds (shelled), lbs	3,758,500	664.6	561.2	0.17	0.13 7 1/2 c lb	5 c lb	6 c lb	42	45
Filberts, lbs.....	11,900,846	673.7	531.0	0.057	0.045 3 c lb	2 c lb	3 c lb	53	44
Filberts (sh'd), lbs	1,395,559	169.0	155.4	0.122	0.11 6 c lb	4 c lb	5 c lb	36	49
Bacon & hams, lbs,	247,783	47.5	45.7	0.19	0.17 5 c lb	20%	5 c lb	26	31
Beef, lbs.....	175,190	12.5	20.2	0.071	0.047 2 c lb	20%	2 c lb	28	49
Mutton, lbs.....	80,012	9.3	7.0	0.12	0.059 2 c lb	20%	2 c lb	17	42
Pork, lbs.....	12,822	1.0	.8	0.082	0.067 2 c lb	20%	2 c lb	24	42
Meats, dressed.....	.....	28.3	29.8	.....	.....	10%	25%	10	25
Meats, prepared.....	.....	104.4	98.7	.....	.....	20%	25%	25	25
Lard, lbs.....	6,051	0.5	.2	0.084	0.11 2 c lb	1 c lb	2 c lb	24	21
Degras, lbs.....	11,693,850	197.0	216.0	0.017	0.014 1 1/2 c lb	Free	1 1/2 c lb	Free	30
Poultry (live) lbs....	317,489	283,923	24.7	0.092	0.087 3 c lb	2 c lb	3 c lb	33	31
Poultry (dressed) lbs	180,062	127,302	16.7	0.093	0.089 5 c lb	3 c lb	5 c lb	34	56
Tallow, lbs.....	48,300	8,595,029	5.0	0.11	0.52 1 c lb	Free	3/4 c lb	Free	18
Chicory, lbs.....	1,900,408	463,579	70.0	0.036	0.033 2 c lb	2 c lb	1 to 2 1/2 c lb	54	77
Coffee sub's'tes, lbs,	1,482,262	2,807,360	56.3	0.037	0.038 1 1/2 c lb	1 1/2 c lb	2 1/2 c lb	40	65
Salt in bags, etc, lbs	130,678,556	12,266,615	446.3	0.003	0.003 12 c cwt	12 c cwt	10 c cwt	35	44
Starch, etc., lbs.....	3,765,596	4,518,240	89.2	0.024	0.02 2 c lb	1 1/2 c lb	1 1/2 c lb	77	84
Mustard, lbs.....	790,130	743,346	207.4	0.26	0.30 10 c lb	25%	10 c lb	38	38
Sage, lbs.....	362,324	699,776	6.4	0.018	0.015 3 c lb	1 c lb	1 c lb	171	79
Spices, miscel., lbs,	119,032	63,043	8.2	0.069	0.11 4 c lb	3 c lb	3 c lb	58	27
Vinegar, gals.....	72,851	77,900	20.0	0.27	0.25 7 1/2 c gal	7 1/2 c gal	7 1/2 c gal	27	26
<i>Spirits, Wines and Beverages.</i>									
Brandy, gals.....	306,693	836.4	802.6	2.73	2.64 \$2.50 gal	\$1.80 gal	\$2.25 gal	92	83
Spirits, from grain, gals.....	655,690	559.0	750.7	0.85	0.96 \$2.50 gal	\$1.80 gal	\$2.25 gal	293	216
Cordials, etc., gals.	196,639	427.3	452.4	2.17	2.08 \$2.50 gal	\$1.80 gal	\$2.25 gal	98	113
Champagne, 1 pt to 1 qt., doz.....	198,188	2,871.0	2,110.0	14.49	14.42 \$8 doz	\$8 doz	\$8 doz	55	52
Champagne, 1/2 to 1 pt, doz.....	292,552	2,273.7	1,615.7	7.60	7.58 \$4 doz	\$4 doz	\$4 doz	53	50
Wine in casks, gals	3,454,078	2,489.2	974.9	0.72	0.66 50 c gal	30 c gal	40 c gal	69	62
Wine in qts, doz...	339,571	1,876.0	1,194.8	5.52	5.35 \$1.60	\$1.60	\$1.60 doz	29	29
Malt liquors, bottled, gals.....	1,239,328	906,912	963.0	0.96	0.96 40 c gal	30 c gal	40 c gal	42	41

Facts About the Tariffs.—Continued.

IMPORTATION FOR CONSUMPTION.										Rate of duty in detail.			Equivalent percent ad valorem.	
Quantities.		Value in thous. dols.		Av value per unit.		Rate of duty in detail.			McKinley.	Wilson.	Dingley.	McK.	Wils'n	D'ly.
McK. 1893.	Wilson '95.	McK '93.	W'n '95.	'93	'95	McKinley.	Wilson.	Dingley.						
Malt liquors, not bottled, gals.....	2,061,887	681.2	614.3	0.33	0.31	20c gal	15c gal	20c gal	51			51	49	68
<i>Cotton Manufactures.</i>														
Cotton man'f'd, not over 25c lb.....	392,438	87.1	2.1	0.22	0.22	10c lb	10c lb	3 to 7½c lb	45			45	42	13-44
Cotton m'f'd, 25 to 40c lb.....	689,318	242.7	25.7	0.35	0.36	18c lb	18c lb	3 to 15c lb	51			51	50	15-55
Thread on sp'ls, doz	869,852	108.0	157.7	0.12	0.11	7c doz	5½c doz	6c doz	56			56	49	58
Cloth, 50 to 100 th'ds, bleached.....	1,996,933	285,265	17.2	0.062	0.069	3c sq yd	3c sq yd	1½c sq yd	48			48	50	23
Cloth, 100 to 150, bl'd, not over 10c sq yd	2,376,206	272,158	21.7	0.081	0.079	4c sq yd	4c sq yd	35%	50			50	50	35
Cloth, bl'd, over 10c sq yd.....	977,530	253,359	30.6	0.12	0.12	40%	40%	35%	40			40	40	35
Cloth, 150 to 200, bl'd below 10c.....	2,287,630	170,613	11.7	0.073	0.169	4½c sq yd	4½c sq yd	4½c sq yd	62			62	65	50
Cloth, 150 to 200, bl'd over 10c.....	1,705,719	146,825	21.8	0.14	0.15	45%	45%	.....	45			45	45	.....
Cloth, 150 to 200, dyed over 6c sq yd.....	.....	3,586,166	394.5	.....	0.11	.....	5c sq yd	5c sq yd	.....			.....	45	47
Cloth, over 200, bl'd over 12c sq yd.....	1,147,025	87,574	14.4	0.17	0.16	45%	45%	.....	45			45	45	.....
Cloth, over 200, bl'd under 12c.....	1,867,249	12,548	1.1	10.0	0.092	5¼c sq yd	5¼c sq yd	.....	55			55	61	.....
Cloth, over 200 bl'd, over 5 sq yd to lb	.....	.....	201.5	.....	0.10	.....	5½c sq yd	5c sq yd	.....			.....	54	.....
Cloth, over 200, dyed 15c or less.....	7,449,692	845,247	928.7	0.12	0.13	6¾c sq yd	6¾c sq yd	.....	54			54	52	.....
Cloth, over 200, dyed not o'r 3½ sq yd lb	.....	.....	329.4	.....	0.13	.....	5¾c sq yd	6¼c sq yd	.....			.....	45	.....
Cloth, dyed, over 3½ sq yds to lb.....	.....	.....	426.1	.....	0.12	.....	6½c sq yd	7c sq yd	54			54	26	.....
Cloth, dyed, over 16c sq yd.....	.....	.....	492.4	.....	0.19	.....	35%	40%	.....			.....	35	40
Corsets, doz.....	32,773	34,206	333.8	11.1	9.74	50%	40%	50%	50			50	40	50
Wearing ap' rel, not elsewhere prov...	.....	.....	395.1	.....	.....	50%	50%	50%	50			50	50	50
Clothing, etc.....	.....	.....	2,051.5	.....	.....	40%	40%	50%	.....			.....	40	50
Pl. velvet, etc., not bl'd, sq. yd.....	26,192	57,757	9.3	21.9	0.35	0.38	12c sq yd	20% 47½%	55			55	47½	.....

Plushes, col., sq yd.	4,637,916	1,613.3	1,571.0	0.35	0.33	14c sq yd 20%	47 1/2%	60	47 1/2%	62
Cordurys, dyed sq yd.	1,150,681	397.5	4,812.0	0.35	0.32	14c sq yd 20%	47 1/2%	61	47 1/2%	66
Stocking, knit, not over \$1.50 doz.	104,602	4,848	58.0	2.6	0.56	35%	35%	35	35	.....
Shirts, etc, not over \$1.50 doz.	30,601	1,864	40.0	2.2	1.30	35%	35%	35	35	.....
Shirts, etc, \$1.50 to \$3 doz.	89,730	1,315	230.0	3.9	2.56	\$1 doz 35%	35%	74	84	.....
Damask	.....	372.0	233.8	.....	.....	40%	40%	40	35	40
Cotton manf., var.	.....	2,171.4	1,958.0	.....	.....	40%	45%	40	35	45
<i>Flax, Hemp and Jute</i>										
Flax, not hackled, tons.	3,261	3,128	759.4	814.6	233.0	258.5 \$22.40 ton	Free	11	Free	9
Flax, hackled, tons	1,307	1,798	815.3	1,961.3	624.0	52.0 3c lb	1 1/2c lb	11	6	14
Hemp, tons.	4,240	4,859	607.4	725.9	143.25	149.65 \$25 ton	Free	17	Free	16
Yarn (jute), lbs.	3,725,580	2,353,502	178.0	112.4	0.048	0.05 35%	30%	35	30	31-35
Cables (tarred), lbs.	404,408	44,291	38.8	4.3	0.096	0.10 3c lb	3c lb	31	31	41
Carpets (hemp or jute), sq yd.	391,286	1,158,307	148.3	385.9	0.38	0.31 6c sq yd	20%	16	20	.....
Bagging for cot., sq yd	730,224	50,408	35.9	2.5	0.049	0.05 1.6c sq yd	1.6c sq yd	32	32	14
Laces, etc.	.....	15,378.9	1,493.1	.....	.....	60%	50 to 60%	60	60	60
Var. m'fs. of flax.	.....	14,058	.....	.....	.....	45%	33%	45	35	50
<i>Wool and Woolen Manufactures.</i>										
Wool, unmf'd, class 1, unwashed, lbs.	35,322,612	694,966	6,516.1	125.0	0.18	0.18 11c lb	Free	60	Free	66
Unmf'd, class 2, unscoured, lbs.	5,740,629	77,936	1,225.2	18.6	0.21	0.24 11c lb	Free	56	Free	56
Wools, class 3, lbs.	125,611,283	136,495,625	9,504.4	1,244.5	0.076	0.091 32%	Free	32	Free	.....
Wool waste, lbs.	.....	4,592,958	.....	817.7	.....	0.178	Free	.....	.....	129
Rags, etc, lbs.	158,266	6,593,346	46.1	403.0	0.29	0.062 10c lb	Free	34	.....	289
Woolen or worsted cloth, over 40c lb.	14,250,622	2,284,000	12,666.2	2,074.2	0.89	0.91 44c lb, 50%	40c lb, 50%	100	98	.....
Yarns, val. ov. 40c lb	1,179,174	1,786,674	694.0	953.3	0.39	0.53 38 1/2c lb, 40%	38 1/2c, 40%	105	40	114
Blankets, ov. 40c lb	697,000	9,080	0.3	7.0	0.48	0.80 33c lb, 35%	35%	103	35	90
Hats, val. ov. 40c lb	28,529	61,394	22.0	47.0	45-81c	69c-81 33c lb, 35%	35%	.....	.....	131
Shawls, over 40c lb.	266,913	189.1	304.2	191.8	1.14	2.10 44c lb, 50%	40%	89	90	104
Knit fabrics	992,221	643,207	1,440.7	816.3	1.45	1.25 49 1/2c lb, 60%	50%	94	50	75-185
Dress goods, val. not over 15c sq yd.	14,640,856	1,841,608	1,900.2	244.9	0.13	0.13 7c sq yd, 40%	7c sq yd, 40%	94	93	.....
Value over 15c sq yd	5,794,946	697,401	1,170.7	139.3	0.20	0.20 8c sq yd, 50%	8c sq yd, 50%	90	90	.....
Ready-made clothing, etc.	304,472	185,571	742.4	594.6	2.44	2.01 49 1/2c lb, 60%	45 to 50%	80	45 to 50	77-103
Plushes, over 50c lb	139,563	100,194	153.7	100.8	1.10	1.01 49 1/2c lb, 60%	50%	105	50	100
Weaving, etc, lb.	173,357	17,920	307.5	29.8	1.77	1.66 60c lb, 50%	50%	94	50	85
Tapestry, Brussels, etc., sq yd.	4,651	29,852	3.4	17.0	0.74	0.58 28c sq yd 40%	42 1/2%	78	43	83

Facts About the Tariffs.—Continued.

IMPORTATION FOR CONSUMPTION.										Rate of duty in detail.			Equivalent per cent ad valorem.	
Quantities.			Value in thous. dols.		Av. value per unit.									
McK. 1893.	Wilson '95.	McK '93.	W'n '95.	'93.	'95.	McKinley.			Wilson.	Dingley.	McK.	Wils'n D'ly.		
<i>Aubusson, Moq'te, chenille.....</i>														
441,750	406,536	1,271.0	1,106.0	2.88	2.72	60c s yd, 40%	40%			60c s yd, 40%	61	40	64	
<i>Silk and Silk Goods.</i>														
758,503	843,647	1,339.0	2,239.6	1.77	1.46	35%	30%			30c lb, 15%	35	30	39	
1,153,178	197,545	3,001.2	503.7	2.60	2.55	\$1.50 lb, 15%	\$1.50 lb, 15%			\$1.50 lb, 15%	73	74	104	
.....	.....	1,384.5	8,205.0	.....	.....	60%	50%			50%	60	50	50	
.....	.....	4,931.8	3,837.7	.....	.....	60%	50%			60%	60	50	60	
.....	.....	9,193.0	7,443.9	.....	.....	50%	45%			50c to \$4.50 lb	50	45	.....	
.....	.....	11,934.0	10,912.0	.....	.....	50%	45%			50%	50	45	50	
<i>Sundries.</i>														
42,617	1,524	2,066.3	66.6	48.48	43.72	\$6 ton	\$6 ton			1-6c lb	12	14	.....	
370,596	1,827,117	18.0	125.1	0.049	0.06	15%	15%			15%	15	15	15	
.....	.....	1,856.0	268.2	.....	.....	35%	35%			60%	35	35	60	
.....	.....	1,798.3	1,446.7	.....	.....	25%	25%			25%	25	25	25	
.....	.....	988.0	715.8	.....	.....	25%	20%			35%	25	20	35	
1,608,688	1,501,596	1,508.1	1,434.5	0.94	0.96	10c lb	10c lb			.....	11	10	.....	
.....	1,444,687	.....	1,380.0	.....	0.96	40c lb	7 1/2 c lb			7 1/2 c lb	.....	8	7 1/2	
.....	.....	819.2	658.0	.....	.....	40%	35%			40%	40	35	40	
13,057,642	18,599,462	275.2	375.9	0.021	0.02	2 1/2 c line, 25%	1c line, 15%			1 1/2 c line, 15%	144	65	78	
.....	.....	471.0	267.5	.....	.....	50%	35%			50%	50	35	50	
1,090,374	1,227,350	3,599.0	3,827.2	3.30	3.13	75c ton	40c ton			67c long ton	23	13	23	
.....	.....	.....	.....	.....	.....	.....	.....			67c ton	.....	.....	29	
26,600	25,240	87.2	65.0	3.28	2.56	20%	15%			20%	20	15	20	
703,039	822,799	345.2	352.4	0.49	0.43	15c lb	10c lb			8 to 25c lb	21	23	.....	
.....	.....	2,827.0	1,967.9	.....	.....	35%	25%			35%	35	25	35	
668,665	624,055	26.5	19.0	0.04	0.03	1c lb	1 1/2 c lb			1c lb	25	25	23	
73,812	196,985	68.0	85.0	0.92	0.79	8c lb	8c lb			6c lb	9	10	8	
.....	.....	1,637.3	263.7	.....	.....	50%	50%			50%	50	50	50	
.....	.....	4,174.2	6,076.4	.....	.....	20%	20%			20%	20	20	20	
.....	.....	.....	278.2	.....	.....	.....	40%			50%	.....	40	50	
.....	.....	318.6	179.0	.....	.....	50%	35%			60%	50	35	60	
.....	.....	14,741.0	4,382.0	.....	.....	10%	25%			10%	10	25	10	

Calf skins, tanned or dressed.....	530.2	602.0	.....	20%	20%	20	20
Skins for morocco, tanned.....	3,822.6	3,575.1	.....	10%	10%	10	10
Chamois skins, etc.	1,930.6	1,043.0	.....	20%	20%	20	20
Boots and shoes....	95.6	45.4	.....	25%	25%	25	25
Gloves, leather, 14 in. and below, doz	254.77	33.101	3.82	3.51	\$1.75	53	50
Lamb, plain, doz...	72,723	14,072	4.05	4.15	\$2.25 doz	56	54
Kid, plain, doz....	182,320	31,064	5.35	5.62	\$3.25 doz	61	58
Bead & jet ornam'ts	.....	8.8	.....	25%	30 to 60%	.....	.....
Straw and grass m'f's, misc. ....	.....	965.5	1,235.7	.....	30%	30	30
India rubber m'f's	.....	265.1	209.9	.....	35%	30	35
Leather, misc. m'f	.....	638.5	427.1	.....	30%	35	35
Fur, misc. man f...	.....	136.1	101.7	.....	30%	75	30
Palm leaf, misc. m'f	.....	118.9	84.8	.....	25%	30	35
Shell m'f's, etc....	.....	283.8	1,431.0	.....	35%	40	35
Matting of cocoa fiber, sq yds.....	101,998	165,776	0.16	0.19	12c sq yd	72	51
Paintings and oil or water colors.....	.....	2,086.8	3,496.4	.....	15%	15 Free	20
Statuary.....	.....	175.0	157.3	.....	15%	15 Free	20
Peat moss.....	.....	.....	.....	Free	Free	Free	.....
Pipes, common clay	.....	.....	.....	.....	.....	.....	.....
gross.....	185,328	55.5	61.5	0.30	0.27	15c gross	52
Other tobacco pipes	.....	259,817	.....	.....	.....	.....	.....
gross.....	.....	241,886	.....	.....	.....	.....	.....
Smokers' articles...	.....	378.7	370.0	.....	10%	50e gr's, 25%	60
Hatters' plush....	.....	120.4	98.0	.....	70%	60%	50
Umbrellas, etc....	.....	26.4	32.0	.....	10%	10 Free	10
Waste.....	.....	153.0	48.7	.....	45%	40 to 50%	40-50
Coffee, lbs.....	562,287,652	656,796,794	80,038.8	0.15	10%	10%	10
Tea, lbs.....	.....	.....	99,878.8	0.15	Free	18 Free	.....

* Conditionally. † Above No. 16, duty under Dingley law, .0195 lb.

‡ Conditionally on reciprocity. (See article following table).

NOTE.—The letters n. s. p. after an item in the tariff schedule signify those "not specially provided for" in other parts of the table or in the free list. When there were different tariff laws during one year, as in 1895, the total quantity of importations is given under both laws, but the rate given is that of the newer law.

Ad valorem duty is a fixed per cent upon the import value of the article. The equivalent ad valorem equals the duty when expressed in ad valorem form. The ad valorem duty varies necessarily according to the changing values of the articles upon which it is levied, while the specific duty per pound, yard, etc., remains fixed. Hence the specific duty yields a more uniform revenue and affords greater protection, in proportion as the prices of commodities decline. As the article cheapens, the specific duty becomes equal to a larger per cent on its value.

The estimated revenue for 1897-98 from the Dingley law is \$270,694,274. In 1896 (Wilson tariff) the customs revenue was \$155,763,251. Hence the new law was expected to yield nearly \$115,000,000 more than the Wilson act. It imposes an average ad valorem rate on all articles of 54.66 per cent, as compared with 40.19 per cent by the Wilson act during 1895.

The Free List.

THE FOLLOWING LIST INCLUDES THE MORE IMPORTANT ITEMS UPON WHICH NO DUTY IS LEVIED UNDER THE DINGLEY BILL.

Any animal imported specially for breeding purposes shall be admitted free, provided that no such animal shall be admitted free unless pure bred of a recognized breed, and duly registered in the book of record established for that breed. Domestic animals strayed, or driven into a foreign country for temporary pasturage, may, with their increase, be returned within six months, free.

Animals brought into the United States temporarily for a period not exceeding six months, for the purpose of exhibition or competition for prizes offered by any agricultural or racing association; teams of animals, including their harness and tackle and the wagons or other vehicles actually owned by persons emigrating from foreign countries to the United States with their families, and in actual use for the purpose of such emigration, and wild animals intended for exhibition in zoological collections for scientific and educational purposes, and not for sale or profit.

Articles in a crude state used in dyeing or tanning, n. s. p.

All binding twine manufactured from New Zealand hemp, istle or Tampico fiber, sisal grass or sunn, or a mixture of any two or more of them, of single ply and measuring not exceeding 600 feet to the pound. Provided that articles mentioned in this paragraph, if imported from a country which lays an import duty on like articles imported from the United States, shall be subject to a duty of one-half of one cent per pound.

Coal, anthracite, not provided for, and coal stores of American vessels, but none shall be unloaded; coal tar, crude; pitch of coal tar and products of coal tar known as dead or creosote oil, and derivatives from coal tar not medicinal and not colors or dyes.

Cocoa or cacas, crude and fiber, leaves and shells of; coffee, coins, gold, silver and copper; copper in plates, bars, ingots or pigs, and other forms not manufactured, or specially provided for; cork wood or cork bark unmanufactured; cotton or cotton waste or flocks.

Diamonds or other precious stones, rough or uncut, and not advanced in condition in value from their natural state by cleaving, splitting, cutting, or other process, including miners', glaziers' and engravers' diamonds, not set.

Eggs of birds, fish and insects, not including eggs of game birds or eggs of birds not used for food.

Fish, frozen or packed in ice, caught in the Great Lakes or other fresh waters by citizens of the United States; fruits or berries, green, ripe or dried, and fruits in brine, not provided for; fruit plants, tropical and semi-tropical, for the purpose of propagation or cultivation; furs, undressed; fur skins of all kinds not dressed in any manner, n. s. p.; gambier.

Guano, manures, and all substances used only for manure; gutta percha, crude.

Hair of horse, cattle and other animals, unmanufactured; hide rope, bones and whetstones; hoofs, unmanufactured; hop roots for cultivation; horns, and parts of, unmanufactured.

Ice, India rubber, crude.

Marrow, crude, marshmallow or althea root, leaves or flowers, natural or unmanufactured; medals of gold, silver or copper, and other metallic articles actually bestowed as trophies or prizes, and received and accepted as honorary distinctions.

Models of inventions and other improvements in the arts, including patterns for machinery, but no article shall be deemed a model or pattern which can be fitted for use otherwise.

Personal effects, not merchandise, of citizens of the United States dying in foreign countries.

Phosphates, crude; plants, trees, shrubs, roots, seed canes and seeds imported by the department of agriculture of the United States Botanic Garden.

Carbonate of potash, crude or refined; hydrate of or caustic potash, not including refined; in sticks or rolls; nitrate of potash or saltpeter, crude; sulphate of potash, crude or refined, and muriate of potash.

Professional books, implements, instruments, and tools of trade, occupation, or employment, in the actual possession at the time of persons emigrating to the United States.

Rennets, raw or prepared; saffron and safflower, and extracts of, and saffron cake, sago, crude; salicin; salep; sausages, bologna; seeds—*anise*, *caraway*, *cardamon*, *cauliflower*, *coriander*, *cotton*, *cinnamon*, *fennel*, *fenugreek*, *hemp*, *horehound*, *mangel-wurzel*, *mustard*, *rape*, *Saint John's bread* or *bean*, *sugar beet*, *sorghum* or *sugar cane* for seed; bulbs and bulbous roots, not edible and n. s. p.; all flower and grass seeds; all the foregoing not specially provided for in this act.

Sheep dip, not including compounds or preparations that can be used for other purposes; shot gun barrels in single tubes, forged, rough bored; shrimps and other shell fish; silk, raw, or as reeled from the cocoon, but not doubled, twisted, or

If you can't help, don't hinder.

advanced in manufacture in any way; silk cocoons and silk waste; silkworms' eggs; skeletons and other preparations of anatomy; skins of all kinds, raw (except sheep skin with the wool on), and hide not specially provided for in this act; soda, nitrate of, or cubic nitrate.

Spices, cassia, cassia vera and cassia buds; cinnamon and chips of; cloves and clove stems; mace; nutmegs; pepper, black or white, and pimento, all the foregoing when unground; ginger root when unground and not preserved or canned.

Tar and pitch of wood; tea and plants; tin ore cassiterite or black oxide of tin, and tin in bars, blocks, pig, grain or granulated; tobacco stems; vaccine virus.

Wearing apparel, articles of personal adornment, toilet articles, and similar personal effects of persons arriving in the United States; but this exemption shall only include such articles as actually accompany and are in the use of and as are necessary and appropriate for the wear and use of such persons for the immediate purposes of the journey and present comfort and convenience, to the limit of \$100 in value.

Wood—Logs and round unmanufactured timber, including pulp wood, firewood, handle bolts, shingle bolts, gun blocks for gun stocks, rough hewn or sawed, or planed on one side, hop poles, ship timber and ship planking; all the foregoing not specially provided for in this act.

Woods—Cedar, lignum vitæ, lancewood, ebony, box, granadilla, mahogany, rosewood, satinwood, and all forms of cabinet woods, in the log, rough, or hewn only; brier root or brier wood and similar wood unmanufactured, or not further advanced than cut into blocks, suitable for the articles into which they are intended to be converted.

Works of art, the production of American artists residing temporarily abroad.

The free list of the Dingley law is identical with that of the Wilson act, with the exception of three items, brass, petroleum products and cocoanuts, which paid duty under the Wilson law but are now free.

Reciprocity.

The reciprocity provisions of the Dingley law enable the president of the United States, in return for any tariff concessions from foreign countries, to grant special rates of duty upon the following items: Crude tartar, brandies, spirits, champagne and other wines, paintings and statuary. For the purpose of securing tariff concessions, the president may also take from the free list coffee, tea, vanilla and tonka beans, and may place a tariff of 3 cents per pound on coffee, 10 cents per pound on tea, 50 cents per pound on tonka beans and \$1 to \$2 per pound on vanilla beans. Provision is also made for special reciprocity treaties.

Special Features of the Tariff.

As compared with the previous tariff measure known as the Wilson law, the Dingley law differs in a general way as follows: 1. The theory of free raw material is given up, and such articles as wool, flax, lumber and hides are taxed, thus favoring the producers of these materials in the United States. 2. Specific duties are substituted in many cases for ad valorem duties. Ad valorem duties are a fixed per cent upon value and accordingly decline when the price declines, but specific duties are levied so much per pound or per yard and thus remain fixed irrespective of the price of the article. 3. The rates average higher than those of the Wilson law and are nearer those of the McKinley tariff. It was expected that the increased rates would add \$100,000,000 or more to the revenue. 4. The schedule is more complicated than in former tariffs because of division of such articles as cotton and woolen goods into a large number of classes. Upon these classes, the textiles, the new duties are very high. 5. The attempt to create new industries, as, for instance, manufactures of flax, by new duties. 6. The provisions of the new tariff looking toward reciprocity of trade with other nations are even more ambitious than those of the McKinley law, and it was expected that concessions might be secured which should give our merchants especial advantages in the way of commerce, especially with countries exporting articles not produced here.

It is the frog's own croak that betrays him.

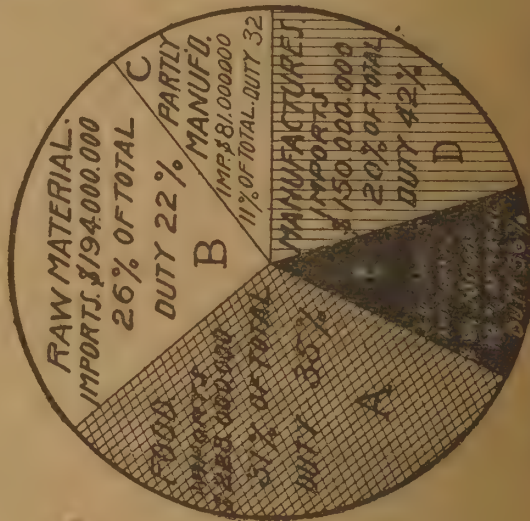
Three United States Tariffs compared, showing amount and proportion of the five classes of articles imported, and the average rate of duty on each.



MCKINLEY TARIFF 1892-93.

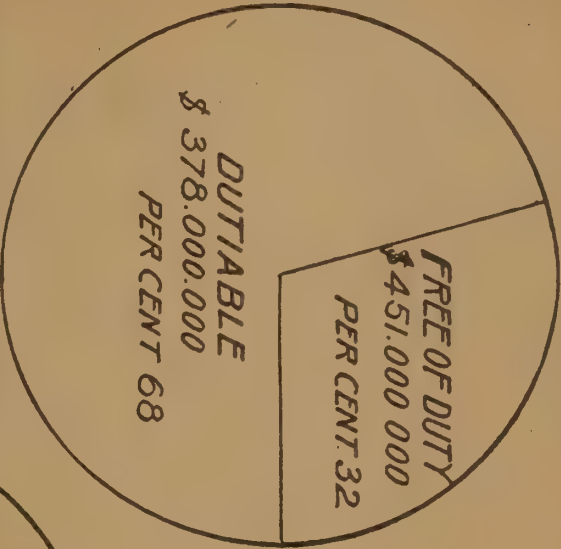


TARIFF OF 1883 FOR YEARS,
1884-85.

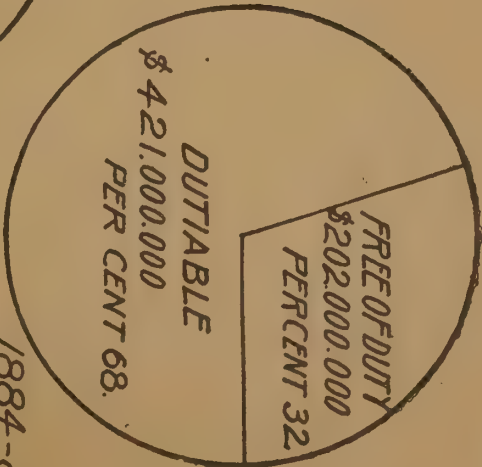


TARIFF OF 1895-96.

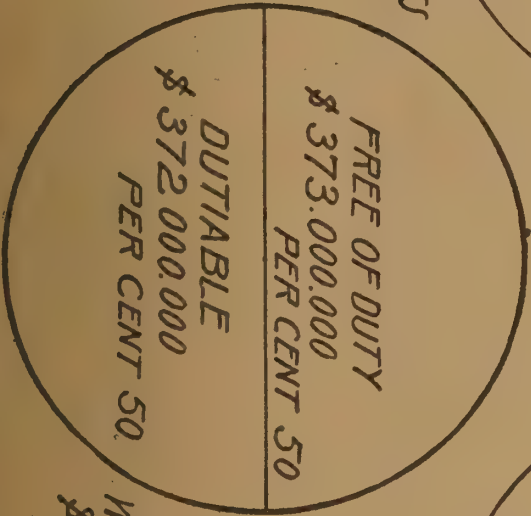
Three United States Tariffs compared, average annual importations under each tariff, average rates of duties and proportion free and dutiable.



McKINLEY '92-'93 IMPORTS
\$ 829,000,000



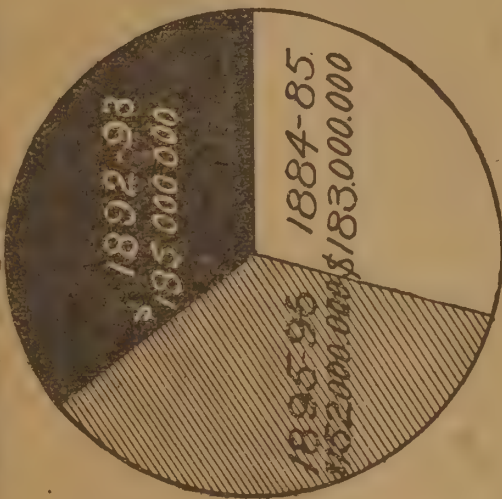
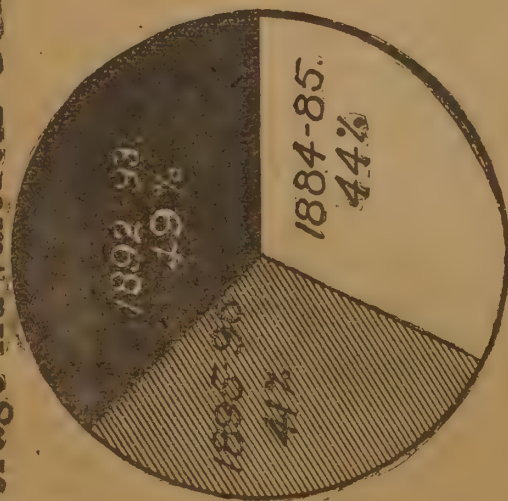
1884-85 IMPORTS
\$623,000,000



WILSON 1895-96 IMPORTS
\$745,000,000

Average Ad valorem Duties

Amount of Duties Paid



Three
Tariffs
Compared

Under
the Three
Tariffs
Per Year

RATES OF DUTIES ON DIFFERENT CLASSES OF IMPORTS

THREE TARIFFS COMPARED.

CLASS	A. FOODS	B. RAW MATERIAL	C. PARTLY MANUF'D	D. MANUFACTURED	E. LUXURIES
TARIFF 1884-85	51%	26.2	27.2	47.8	49.5
MCKINLEY 92-93	31.2%	33.6	38.2	59.2	55.7
WILSON 95-96	34.7%	21.7	31.8	41.9	55.8

CANADA'S NEW TARIFF.

The most remarkable feature of the new tariff law passed by the Dominion parliament in 1897 is a provision by which British trade is practically favored at the expense of the United States. The bill is explained as in part a testimony of Canadian loyalty to the motherland and partly a result of the irritation produced in the Dominion by the high tariff tax imposed by the United States. In general, the new Canadian tax maintains most of the old rates, although on iron, coal oil, fence wire, hinder twine, the duty is reduced. But on all goods, except alcohol and tobacco, a concession of one-eighth is offered to all countries whose tariffs admit Canadian products on terms which Canada may consider an equivalent for the Canadian reduction of duties. The one-eighth becomes one-fourth after July 1, 1898. As tariffs now stand, the only countries that seem able to claim the one-eighth reduction are Great Britain and New South Wales, and certain articles manufactured in the United States will henceforth compete with goods from those two countries at a disadvantage unless tariff concessions are made by the United States. The new law reduces the rates on iron and steel \$1 to \$1.50 per ton and increases the bounty \$1 per ton. Corn is placed on the free list. Liquors and tobacco will pay an increased duty. Flour pays less. Refined sugar is taxed 22 per cent less. The following is a partial list of the more important articles:

New Canadian Tariff of 1897.

Goods subject to duties—Wines, Liquors, etc.

	Per gal.	Duty.
Cider, not refined		5c
Cider, refined	"	10
Spirits	"	\$2.40
Wines	"	and 30 % ad va 25c

Animals, and Agricultural, Animal and Dairy Products.

Animals, living, n. e. s.		20 % ad va
Live hogs	Per lb.	1 1-2c
Meats, fresh, n. e. s.	"	3
Canned meats	"	25 % ad va
Mutton and lamb, fresh	"	35 "
Poultry and game, n. o. p.	"	20 "
Lard, lard compound and similar substances, cottolene and animal stearine of all kinds, n. e. s.	"	2c
Beeswax	"	10 % ad va
Eggs	Per doz.	3c
Butter	Per lb.	4
Cheese	"	3
Apples, including duty on bbl.	Per bbl.	40
Beans	Per bu.	15
Buckwheat	"	10
Peas, n. e. s.	"	10
Potatoes, n. e. s.	"	15
Rye	"	10
Rye flour, including duty on bbl.	Per bbl.	50
Hay	Per ton	\$2.00

Animals, and Agricultural, Animal and Dairy Products.

	Duty.
Vegetables, n. o. p.	25 % ad va
Barley	30 "
Rice	1 1-4 to 1 1-2 %
Wheat	Per bu. 10 to 12c ad va
Seeds	25 % ad va
Tomatoes, fresh	Per bu. 20c
Tomatoes, canned	Per lb. 1 1-2c
Fruit trees	each 3
Apples, dried	Per lb. 25 % ad va
Grapes	" 2c
Tea and green coffee, n. e. s.	" 10 % ad va
Nuts, shelled, n. e. s.	" 5c
Salt	Per 100 lbs. 7 1-2

Books and Paper.

Books, etc.	10 % ad va
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Colors, Paints, Oils, Varnishes, etc.

Turpentine, spirits	20 % ad va
Oils, coal and kerosene distilled, purified or refined, naphtha and petroleum, and products of petroleum, n. e. s.	Per gal. 5c

Coal.

Bituminous slack coal	20 % ad va
Coal, bituminous	Per ton 53c

Earthenware, Cements, Slate and Stoneware.

Grindstones, n. e. s.	15 to 25 % ad va
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Canada's New Tariff.—Continued.

<i>Leather, Rubber, and Manufactures of</i>		<i>Metals, and Manufactures of</i>	
	Duty.		Duty.
India-rubber, man- ufactured	25 to 35 % ad va	horse rakes, seed-drills, ma- nure spreaders, weeders, and malleable sprocket or link belting chain for binders	20% ad va
<i>Metals, and Manufactures of</i>		Manufactures, arti- cles or wares not specially enumerated or provided for, composed whol- ly, or in part, of iron or steel, and wheth- er wholly, or in part, manufac- tured	30 "
Iron and steel	30 % ad va	Bicycles and tricy- cles	30 "
Stoves	25 "	Lumber and timber, manufactured, n. e. s.	20 "
Wire nails	Per lb. 3 to 5c	Jewelry, etc.	30 "
Axes, scythes, sic- kles or reaping hooks, hay or straw knives, edging knives, hoes, rakes, pronged forks, snaths, farm, road or field rollers, post hole diggers, and other agricultu- ral implements, n. e. s.	25 % ad va	<i>Textiles, etc.</i>	
Shovels and spades	33 "	Cotton, manufac- tured	25 to 35 "
Sewing machines, and parts there- of	30 "	Wool	Per lb. 3c
Steam engines, boil- ers, ore crushers and rock crush- ers, stamp mills, Cornish and belted rolls, rock drills, air compressors, cranes, derricks, percussion coal cutters, pumps, n. e. s., wind- mills, horse- powers, portable engines, thresh- ers, separators, fodder or feed cutters, potato diggers, grain crushers, fan- ning mills, hay tedders, farm wagons, slot ma- chines and type- writers, and all machinery com- posed wholly, or in part, of iron or steel, n. o. p.	25 "	Fabrics, wool	35 % ad va
Mowing machines, harvesters, self binding or with- out binders, binding attach- ments, reapers, cultivators, plows, harrows,		<i>Sundries. .</i>	
		Canoes, etc.	25 % ad va
		Fertilizers, com- pounded or man- ufactured	10 "
		<i>Sugar, Syrups and Molasses.</i>	
		All sugar above number sixteen, Dutch standard in color, and all refined sugars of whatever kinds, grades, or standards	Per lb. 1c
		Sugar, n. e. s., not above number sixteen	" 1-2
		Glucose, etc.	" 3-4
		<i>Tobacco and Manufactures of</i>	
		Cut tobacco	Per lb. 55c
		Cigars and cigarettes	" 3
		Foreign leaf raw to- bacco, unstem'd	" 10
		Foreign raw leaf to- bacco, stemm'd	" 14

The Canadian tariff law prohibits the importation of oleomargarine, adulterated tea and goods manufactured wholly, or in part, by prison labor.

Faithful are the wounds of a friend.

THE MONEY QUESTION.

BANKS AND BANKING.

Aggregate Resources and Liabilities of all Banks in the United States.

For year ending Jan. 30, 1896, or nearest that date, except that the figures for national banks are from the reports of July 23, 1897. The figures for co-operative banks are based on the returns for 1896 from 14 States, containing 76 % of these institutions in the country, to which is added the 1893 returns from the other 34 States. Compiled from Circular 136, Treasury Department. To which are added the returns of co-operative banks (building and loan associations), as compiled by the department of labor.

In millions of dollars.

KIND OF BANKS.	State.	Loan and Trust.	Sav- ings.	Pri- vate.	Total.	Nat- ional	Co-op- era- tive.b.	Ag- gre- gate.
Number of each kind,	3,774	242	1,017	1,070	6,103	3,610	6,047	15,760
<i>Resources.</i>								
Loans on real estate,	\$44	\$50	\$792	\$14	\$900	—	c \$500	\$1,400
Loans on collateral security other than real estate,	{ 42	221	51	11	325	1,967	c 17	{ —
Other loans and discounts,	{ 606	162	192	59	1,019	—	—	{ 3,328
Overdrafts,	5			1	6	11	—	17
United States bonds,	1	39	123	1	164	a 279	—	443
State, county and municipal b'ds,	1	4	431	1	437	—	—	—
R. R. bonds and stocks,	{	6	131	1	138	—	—	{ —
Bank stocks,	{		44	1	45	205	—	{ 1,158
Other stocks and bonds,	{ 89	127	113	4	333	—	—	{ —
Due from other banks and b'kers,	127	93	82	18	320	446	—	766
Real estate, furniture and fixt'es,	43	29	41	8	121	108	—	229
Current expenses and taxes paid,	3			1	4	—	—	4
Cash and cash items,	143	36	40	9	228	123	19	370
Other resources,	40	39	13	2	94	425	79	598
Total,	1,144	806	2,053	131	4,138	3,564	615	8,313
<i>Liabilities.</i>								
Capital stock	250	109	29	33	422	632		1,054
Surplus,	74	64	148	7	293	247	85	625
Deposits,	712	547	8,111		1,811	1,787	479	4,077
Other liabilities,	108	86	65	91	1,612	898	51	2,561
Total,	1,144	806	2,053	131	4,138	3,564	615	8,313

a Include bonds to secure circulation, to secure deposits, on hand, and premiums on bonds. b Complete figures to date would doubtless show \$700,000,000 in the co-operative banks (or building and loan associations) of the U. S. c This division estimated.

There are about 10,000 banks in the United States, exclusive of 6000 co-operative banks, of which nearly 4000 are national banks, and the rest: State banks 3775, loan and trust companies 242, savings banks 1017, private banks 1070. The accompanying tables and notes give exact details, compiled from reports of the United States treasury

department. This introduction is confined to round numbers and a general statement. It is neither the province nor the purpose of this article to express opinions.

Reports from the national banks alone show their average receipts to be fully 300 millions of dollars on each business day, or a turn over of 90,000 millions in a year of 300 working days. Returns from the other banks are not clear on this point, but other receipts may be assumed at two-thirds that of the national banks, as their resources are nearly one-fourth larger. Here is a turn over of 150,000 millions of dollars each year by the banks of the United States. Over one-third of this sum passes through the clearing houses.

Now the total stock of gold, silver and paper money in the United States is only some 1600 millions of dollars. Thus the entire supply of currency is only about one-tenth of the amount handled by the banks, to say nothing of the amount of business done that doesn't go through the banks at all.

As a matter of fact, over 90 per cent of all business transactions in towns and cities are done by checks, drafts and like instruments of credit. Returns from the national banks of all receipts on a given day at five different dates during the past 15 years prove this. The first return, in 1881, showed over 95 per cent of the deposits to be checks, drafts, etc, while in 1892 the proportion had dropped to 90.6 per cent. Among the banks of New York city, only 4 to 6 per cent of the daily balances at the New York clearing house are paid in cash. Hence the statement that "nine-tenths of the business of the country is done on credit," which is merely another name for our confidence in each other's ability to pay 100 cents on the dollar.

Said the comptroller of the currency in his report for 1892: "When the public lose confidence and credit is impaired and refused, over 90 per cent of all business transactions are directly affected. It is easy to realize how impossible it is for the remaining 10 per cent of money to carry on the business of the country without monetary stringency and financial distress. The refusal to extend or continue credit, the demand for payment in money, leaves the actual money or currency of the country, be it \$24 per capita or \$50 per capita, utterly powerless to supply business needs."

This is true, for it would take at least \$250 per capita to transact the country's business on a cash basis. Whatever opinions are held upon the standard of values or volume of currency, all will agree as to the vast importance of credit instruments and facilities for their use by farmers and laborers in rural districts as well as for those in towns and cities.

Treasury statistics show a total supply of money in the United States of about \$35 per capita, of which from \$22 to \$24 per capita is reported as "in circulation." Many critics point out that the actual circulation is much less. But the working funds of the banks in the United States are nearly \$100 per capita—that is, their capital, surplus, undivided profits and individual deposits. Thus bank funds (cash and credit instruments) are four times as much per capita as the circulation of actual money.

The deposits in savings banks, about \$30 per capita, considerably exceed the per capita circulation of money. The funds of the national banks alone are nearly \$40 per capita, of state banks about \$15 and of loan and trust companies \$10.

Modest dogs miss much meat.

Resources and Liabilities of United States Banks.

At the close of each year since 1890. Numbers of banks stated in full. All other figures are millions of dollars.

NATIONAL BANKS.

See Pages 218-223 for returns in detail.

PRIVATE BANKS.

	1891	1892	1893	1894	1895	1896
Number of banks.....	1,235	1,161	848	904	1,070	824
Loans on real estate.....	\$16	\$14	\$10	\$9	\$14	\$12
Loans on personal security....	17	10	9	14	11	12
Other loans.....	68	69	55	44	59	34
Other assets.....	51	54	34	38	47	36
Total.....	152	147	108	105	131	94
Capital stock.....	37	35	27	27	33	22
Surplus.....	9	8	5	6	7	5
Deposits.....	95	93	69	66	82	59
Other liabilities.....	11	11	7	6	9	8

SAVINGS BANKS.

	1891	1892	1893	1894	1895	1896
Number of banks.....	1,011	1,059	1,030	1,025	1,017	988
Loans on real estate.....	\$688	\$715	\$764	\$779	\$792	\$800
Loans on personal security....	94	79	74	66	51	51
Other loans.....	198	230	209	181	192	204
Stocks and bonds, <i>a</i>	828	772	799	778	842	905
Other assets.....	47	168	168	177	177	183
Total assets.....	1,855	1,964	2,014	1,981	2,054	2,143
Reserve, <i>b</i>	188	198	197	196	204	202
Savings deposits.....	1,623	1,713	785	1,748	1,811	1,907
Other deposits.....	32	46	24	30	34	28
Other liabilities.....	12	7	8	7	5	6

a Includes other mortgages.

b Includes capital stock (\$29,465,000 in 1895), surplus fund and undivided profits.

LOAN AND TRUST COMPANIES.

	1891	1892	1893	1894	1895	1896
Number of companies.....	171	168	228	224	242	260
Real estate loans.....	\$65	\$55	\$81	\$58	\$50	\$71
Loans on personal security....	225	256	307	234	221	250
Other loans.....	67	74	74	83	162	142
Other assets, <i>a</i>	180	215	265	330	374	392
Total.....	537	600	727	705	807	855
Capital.....	79	81	95	97	109	111
Surplus, <i>b</i>	55	62	71	75	85	62
Deposits.....	355	412	486	471	547	586
Other liabilities.....	48	45	75	62	66	96

a Mostly bonds and stocks.

b Includes undivided profits.

PERCENTAGE OF TOTAL RECEIPTS BY THE VARIOUS CLASSES OF BANKS. *c*

	Jan. 30, 1881.	Sept. 17, 1881.	July 1, 1890.	Sept. 17, 1890.	Sept. 17, 1892.
New York.....	58.81	55.95	39.34	36.80	39.55
Boston.....	11.62	8.16	10.30	8.11	8.23
Philadelphia.....	6.34	6.04	9.03	7.11	7.07
Chicago.....	2.86	4.41	5.78	6.92	7.57
Average for cities.....	19.91	18.64	16.11	14.74	15.60
Other reserve, city.....	6.26	7.78	13.73	14.73	12.30
Average of all reserve, city.....	5.37	5.15	3.55	3.35	3.35
Country banks.....	14.11	17.66	21.82	26.33	25.28

c For first part of this table see Page 225.

National Bank Returns by Years.

Liabilities of the national banks of the United States at the close of each year, as reported in the last return for the calendar year to the Secretary of the Treasury.

In millions of dollars.

Close of calendar year.	Capital stock.	Surplus and undivided profits.	National bank circulation.	Deposits of individuals.	Total liabilities.
1864	\$87	\$8	\$45	\$122	\$297
1865	393	71	171	501	1,360
1866	415	86	280	566	1,527
1867	420	101	293	541	1,499
1868	421	114	296	581	1,560
1869	426	127	294	511	1,497
1870	435	141	296	507	1,539
1871	460	149	318	597	1,716
1872	483	168	336	598	1,774
1873	490	179	341	541	1,729
1874	496	182	331	683	1,902
1875	505	192	314	619	1,823
1876	497	183	292	619	1,787
1877	477	173	299	605	1,737
1878	465	160	303	599	1,743
1879	454	163	321	755	1,925
1880	459	169	317	1,006	2,242
1881	466	184	325	1,103	2,382
1882	485	191	315	1,067	2,361
1883	512	203	305	1,106	2,446
1884	524	217	280	988	2,297
1885	529	219	267	1,111	2,458
1886	551	239	202	1,170	2,508
1887	581	255	165	1,236	2,624
1888	594	276	143	1,331	2,778
1889	618	296	126	1,436	2,934
1890	658	337	123	1,485	3,047
1891	677	336	135	1,602	3,238
1892	690	355	146	1,764	3,480
1893	682	347	180	1,539	3,242
1894	666	341	169	1,695	3,423
1895	657	337	182	1,702	3,424
1896	654	334	187	1,648	3,348
1897a	642	334	203	1,669	3,446

a As reported March 9.

National Bank Returns by Years.

Resources of national banks at date of each return and number at close of each year. In millions of dollars.

	No. of banks.	Late winter.	Early spring.	Mid-summer.	Early fall.
1864	508	\$38	\$115	\$252	\$297
1865	1,513	513	772	1,126	1,360
1866	1,644	1,405	1,442	1,476	1,527
1867	1,642	1,511	1,465	1,494	1,499
1868	1,643	1,503	1,500	1,572	1,560
1869	1,617	1,540	1,518	1,564	1,497
1870	1,648	1,546	1,529	1,566	1,511
1871	1,790	1,627	1,694	1,703	1,731
1872	1,940	1,719	1,744	1,771	1,756
1873	1,976	1,839	1,800	1,851	1,831
1874	2,027	1,809	1,868	1,852	1,877
1875	2,086	1,870	1,910	1,913	1,882
1876	2,082	1,834	1,793	1,826	1,827
1877	2,074	1,818	1,797	1,774	1,741
1878	2,055	1,729	1,742	1,750	1,767
1879	2,052	1,801	1,984	2,020	1,869
1880	2,095	2,038	1,975	2,035	2,106
1881	2,164	2,140	2,270	2,326	2,358
1882	2,308	2,309	2,278	2,344	2,400
1883	2,529	2,299	2,360	2,365	2,373
1884	2,664	2,391	2,397	2,283	2,279
1885	2,732	2,313	2,347	2,422	2,433
1886	2,875	2,494	2,475	2,454	2,514
1887	3,070	2,581	2,629	2,637	2,620
1888	3,150	2,664	2,732	2,731	2,816
1889	3,326	2,837	2,905	2,938	2,998
1890	3,573	3,003	3,010	3,062	3,141
1891	3,692	3,065	3,167	3,113	3,213
1892	3,784	3,437	3,479	3,494	3,510
1893	3,787	3,460	3,432	3,213	3,110
1894	3,737	3,325	3,433	3,422	3,474
1895	3,712	3,379	3,410	3,471	3,424
1896	3,676	3,348	3,778	3,356	3,254
1897	3,610	3,446	3,492	3,564	?

Total coinage of standard silver dollars up to Nov. 1, '86, was 244 millions, of which 100 were held in treasury for payment of outstanding silver certificates and 83 millions in excess thereof, balance in circulation 62 millions. On Oct. 1, '97, the figures were 452, 374, and 20 millions, only 57 millions being in circulation.

Envoys.**REPRESENTATIVES OF FOREIGN NATIONS IN THE UNITED STATES.**

If information is wanted concerning any of these countries, apply to their representatives as given below. Address Washington, D. C.

Argentina. Dr. Martin Garcia Mérou.

Austria. Mr. Ladislaus Hengelmüller von Hengervár.

Belgium. Count G. de Lichtervelde.

Brazil. Senhor Salvador de Mendonça.

Chile. Señor Don Domingo Gana.

China. Mr. Yang Yu.

Columbia. Señor Don José Marcelino Hurtado.

Costa Rica. Señor Don Joaquin Bernardo Calvo.

Denmark. Mr. Constantin Brun.

Ecuador. Señor Don Luis Felipe Carbo.

France. Mr. J. Patenôtre.

Germany. Baron Max Von Thielmann.

Great Britain. The Rt. Hon. Sir Julian Pauncefote.

Italy. Baron de Fava.

Japan. Mr. Toru Hoshi.

Mexico. Señor Don Matias Romero.

Netherlands. Mr. G. de Weckerlin.

Portugal. Viscount de Santo Thyrsó.

Russia. Mr. E. de Kotzebue.

Spain. Señor Don E. Dupuy de Lôme.

Sweden and Norway. Mr. J. A. W. Grip.

Switzerland. Mr. J. B. Pioda.

Venezuela. Señor José Andrade.

These officials are usually pleased to reply to inquiries about their respective countries.

National Bank Returns by Years.

Number of national banks organized, in voluntary liquidation, insolvent, and number and capital of associations in active operation on January 1 of each year from 1864 to 1895.

Year	Organized	In voluntary liquidation.	Insolvent.	In active operation.	
				No.	Capital a
1864..	179	.....	.....	179	\$14
1865..	682	6	.....	676	135
1866..	1,626	11	1	1,614	403
1867..	1,665	16	3	1,646	420
1868..	1,675	29	10	1,636	420
1869..	1,688	47	13	1,628	426
1870..	1,696	62	15	1,619	433
1871..	1,759	77	15	1,667	442
1872..	1,912	87	19	1,806	463
1873..	2,073	101	23	1,949	487
1874..	2,131	118	34	1,979	499
1875..	2,214	141	37	2,036	503
1876..	2,315	179	40	2,096	511
1877..	2,345	211	50	2,084	501
1878..	2,375	236	61	2,078	485
1879..	2,405	274	76	2,055	471
1880..	2,445	308	81	2,056	461
1881..	2,498	320	84	2,094	467
1882..	2,606	349	84	2,172	470
1883..	2,849	429	87	2,333	492
1884..	3,101	462	89	2,550	518
1885..	3,281	506	102	2,673	529
1886..	3,427	578	104	2,745	534
1887..	3,612	611	113	2,888	555
1888..	3,832	632	121	3,079	584
1889..	3,954	668	128	3,158	598
1890..	4,190	706	133	3,351	623
1891..	4,494	754	143	3,597	665
1892..	4,673	804	169	3,700	685
1893..	4,832	853	180	3,799	695
1894..	4,934	905	243	3,786	693
1895..	4,983	975	260	3,748	670
1896..	5,029	1,024	294	3,711	664

a In millions of dollars.

During this period to '95 a total of 330 national banks have actually failed (six and one-half per cent of the whole number), or an average of 10 a year, with a capital of \$56,000,000 and liabilities of \$98,000,000. Their assets were \$187,000,000, besides \$29,000,000 assessed upon stockholders. Up to July 1, 1896, the creditors had been paid \$63,000,000, or nearly two-thirds of their claims, and the assets remaining will allow further payments. The average dividends paid to creditors of failed national banks whose accounts are all closed up has been about 75 per cent. The circulation (national bank notes) was, in every case, paid in full from U. S. bonds deposited as security for this purpose. Out of these 330 failed nationals, 149 collapsed during the four years, 1893-96, with a capital of \$23,000,000, nominal assets \$66,000,000, and claims proved of \$26,000,000.

The figures for Jan. 1, 1896, show the previous year to have been one of the poorest in the record of the national banks.

Reports of 1234 banks other than national that failed between 1863 and 1896, have been compiled by the comptroller of the currency. Their capital stock was \$54,000,000, nominal assets \$214,000,000; liabilities \$221,000,000, of which \$100,000,000, or 50 per cent, had been paid, with considerable assets still on hand to realize upon.

The number of national banks that failed in each State, 1863-1895 inclusive, was as follows:

	State	N't'l		State	N't'l
Ala.,	3	6	Nevada	1	1
Ariz.,	3		N. H.,	22	3
Ark.,	1	4	N. J.,	10	4
Cal.,	16	5	N. M.,	12	3
Col.,	38	9	N. Y.,	92	34
Conn.,	15	3	N. C.,	2	3
Del.,	1		N. Dak.,	13	7
Fla.,	7	6	Ohio,	112	11
Ga.,	9	4	Okla.,	7	1
Idaho,	7		Oregon,	10	5
Illinois,	121	16	Penn.,	162	20
Ind.,	77	11	R. I.,	10	
Iowa,	43	8	S. C.,	4	1
Kansas,	30	29	S. Dak.,	27	8
Ky.,	12	1	Tenn.,	5	7
La.,	7	4	Texas,	11	21
Maine,	8		Utah,	5	1
Md.,	2		Vt.,	2	4
Mass.,	15	4	Va.,	13	6
Mich.,	7	7	Wash.,	32	22
Minn.,	31	4	W. Va.,	1	
Miss.,	5	2	Wis.,	31	3
Mo.,	74	9	Wyo.,	8	2
Mont.,	5	11			
Neb.,	105	17	Total,	1234	330

Number and Deposits of National and other Banks

In each geographical division, in the years noted, reporting to the United States treasury department.

NUMBER OF BANKS.

SECTION.	1863	1870	1880	1890	1896
New Engl'd.	892		1,086	1,104	1,141
Eastern.....	587		1,957	1,463	1,682
Southern...	64		677	1,073	1,259
Western....	282		2,549	4,022	4,730
Pacific .....	.....		277	728	644
Total....	1,825	*2,494	6,546	8,390	9,456

DEPOSITS.

Millions of dollars.

	\$173	\$354	\$546	\$946	\$1,183
New Engl'd.	\$173	\$354	\$546	\$946	\$1,183
Eastern.....	370	660	1,094	1,844	2,260
Southern...	15	17	95	226	220
Western....	28	89	350	818	931
Pacific .....	.....	38	108	282	279
Total....	\$586	\$1,159	\$2,193	\$4,116	\$4,875

*The figures for 1870 include state bank reports for 1873, no figures being obtainable. The number of banks other than national in each geographical division is not shown in the reports from which the statement of number of banks and deposits was taken.

National Bank Returns by Years.

Number of National banks, their capital, surplus, dividends, net earnings, and ratios, yearly, 1870 to 1895.

Year ended	Millions of dollars.				Ratios Per Cent.		
	Capital.	Surplus.	Dividends.	Net earnings.	Dividends to capital.	Dividends to capital and surplus.	Net earnings to capital and surplus.
1870	\$409	\$84	\$43	\$58	10.5	8.8	11.8
1871	427	93	43	54	10.1	8.3	10.4
1872	448	98	44	54	10.0	8.2	10.2
1873	473	109	48	62	10.3	8.4	10.7
1874	488	120	48	62	9.9	7.9	10.3
1875	491	129	49	59	10.1	7.9	9.5
1876	501	134	49	51	9.8	7.8	8.1
1877	498	131	44	40	8.9	7.0	6.3
1878	480	123	41	32	8.6	6.8	5.3
1879	467	117	35	28	7.6	6.1	4.8
1880	454	116	35	38	7.8	6.2	6.7
1881	455	121	37	48	8.2	6.4	8.4
1882	459	129	39	56	8.6	6.7	9.5
1883	478	135	41	52	8.6	6.7	8.6
1884	501	143	41	55	8.2	6.4	8.6
1885	520	148	40	45	7.8	6.1	6.9
1886	527	150	41	49	7.9	6.1	7.3
1887	542	160	43	59	7.9	6.1	8.5
1888	567	175	45	65	7.9	6.1	8.8
1889	588	188	46	67	7.9	6.0	8.7
1890	607	200	49	69	8.1	6.1	8.6
1891	643	215	50	76	7.9	5.9	8.9
1892	671	230	50	69	7.5	5.6	7.8
1893	682	241	51	68	7.5	5.5	7.4
1894	681	247	46	52	6.8	5.0	5.6
1895	664	245	46	45	6.9	5.0	5.0
Av. 26 years.	528	153	44	55	8.4	6.5	8.0
Ag. 26 years.	...	...	1,155	1,426	...	...	...
1896	656	248	49	45	6.9	5.0	5.4

Development of National Banks in Different Sections.

CAPITAL AND DEPOSITS.

	d 1865	d 1895	d 1897	e 1897
New Eng...	219	518	441	450
Middle a...	509	948	984	1,007
Southern b.	25	198	199	195
Western c.	136	772	741	751
Total...	889	2,436	2,365	2,403

LOANS AND DISCOUNTS.

	1865	1895	1897	1897
New Eng...	148	398	388	396
Middle....	276	838	819	848
Southern..	7	173	152	154
Western...	59	605	566	568
Total...	490	2,014	1,925	1,967

a N. Y., Pa., N. J., Md., Del., D. C.

b Va., W. Va., N. C., S. C., Fla., Ga., Ala., Miss., La., Tenn., Ky., Ark., Texas.

c O., Ind., Mich., and all west thereof.

d From report comptroller of currency, June 21, 1897, of returns May 21.

e From report comptroller of currency, Aug. 24, 1897, of returns July 23.

Money Before the War.

Specie and bank notes circulation of the United States in the years specified from 1800 to 1859. In millions, except that per capita is in full.

Year.	No. of banks	Bank notes outstanding	Specie in U. S.	Total money in U. S.	Specie in treasury.	Money in circulation.	Population.	Per capita.
1800		\$11	\$18	\$28	\$2	\$27	5	\$4.99
1810		28	30	58	a3	55	7	7.60
1820		45	24	69	a2	67	10	6.96
1830		61	33	93	6	87	13	6.69
1831		77	32	109	6	93	13	7.04
1832		92	30	122	5	117	14	8.64
1833		92	31	122	2	120	14	8.60
1834	506	95	41	136	12	124	14	8.64
1835	704	104	51	155	9	146	15	9.86
1836	713	140	65	205	a5	200	15	13.17
1837	788	149	73	222	a5	217	16	13.87
1838	829	116	88	204	a5	199	16	12.33
1839	840	135	87	222	2	220	17	13.26
1840	901	107	83	190	4	186	17	10.91
1841	784	107	80	187	1	186	18	10.59
1842	692	84	80	164		164	18	9.02
1843	691	59	90	149	1	147	19	7.87
1844	696	75	100	175	8	167	19	8.68
1845	707	90	96	186	8	178	20	8.95
1846	707	106	92	203	9	193	21	9.43
1847	715	106	120	226	2	224	21	10.59
1848	751	129	112	241	8	232	22	10.66
1849	782	115	120	235	2	233	22	10.34
1850	824	131	154	285	7	279	23	12.02
1851	879	155	186	341	11	330	24	13.76
1852		172	204	376	15	361	25	14.63
1853		188	236	424	22	402	26	15.80
1854	1,208	205	241	446	20	426	26	16.10
1855	1,307	187	250	437	19	418	27	15.34
1856	1,398	196	250	446	20	426	28	15.16
1857	1,416	215	260	475	18	457	29	15.81
1858	1,422	155	260	415	6	409	30	13.78
1859	1,476	193	250	443	4	439	31	14.35

a Specie in treasury estimated.

Kinds of Money in Use.

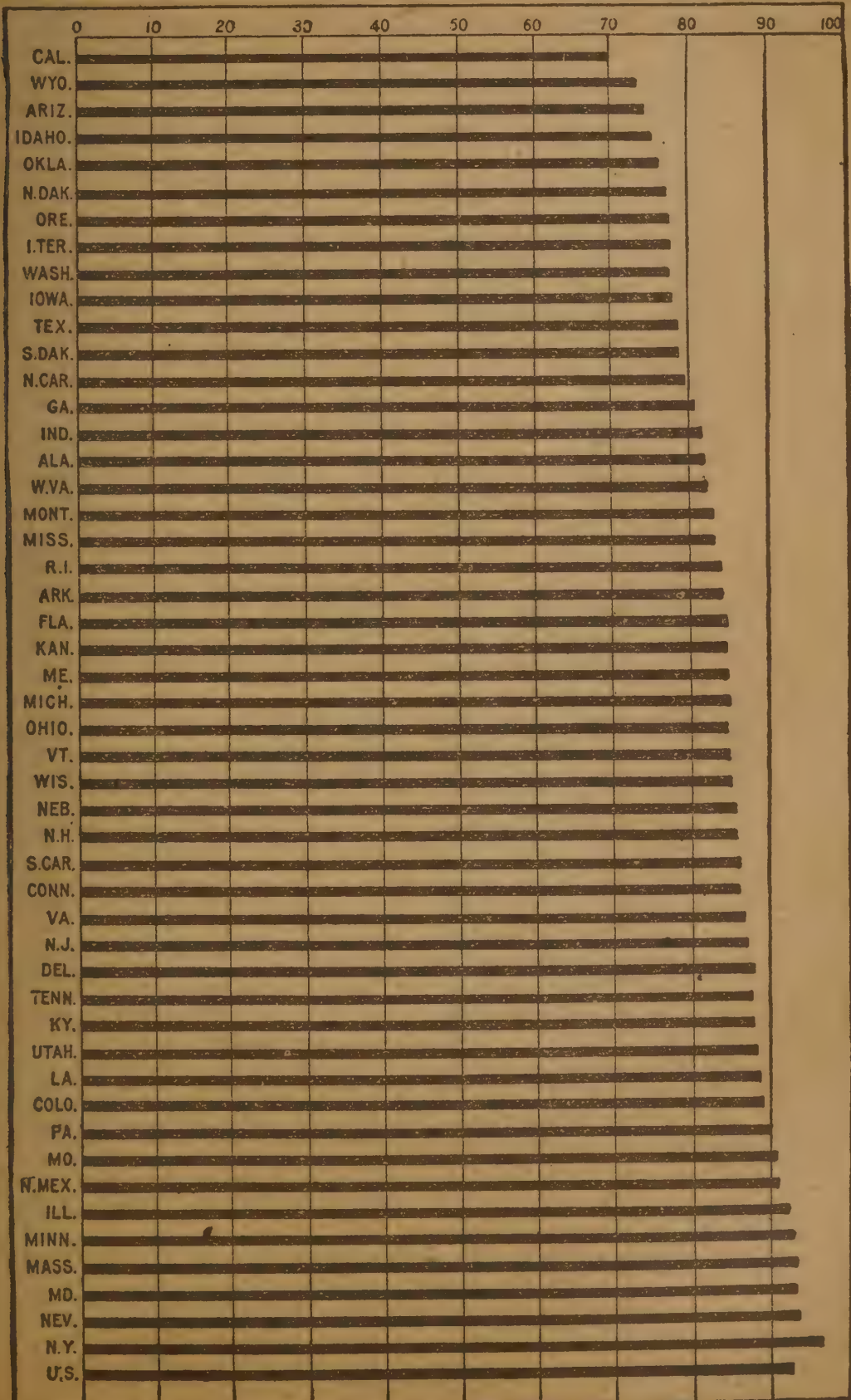
Kinds of money received by assistant treasurers of the United States, from July 1, 1893, to June 30, 1896, in millions of dollars.

	For customs	For internal revenue.	For miscellaneous.	Total.
Nat'l bank notes...	\$0.3	\$0.9	\$1.8	\$3.1
U. S. notes.....	178.9	1.7	12.9	193.6
Treas notes of '90...	32.7	0.8	6.6	40.2
Gold certificates...	2.0		0.4	2.4
Silver certificates...	184.1	2.8	13.4	200.3
Gold coin.....	39.2	1.3	4.4	44.9
Standard dollars...	6.0	0.2	0.3	6.6
Totals.....	443.6	7.8	39.9	491.4

The amounts received in the form of subsidiary silver and minor coin are included in the total.

Deposits in National Banks.

The Lines Show the Per Cent. that Checks Constitute of the Average Daily Deposits.



Money in Circulation.

Coin and paper circulation of the United States on June 30, from 1860 to 1896 inclusive, in millions of dollars.

Year	Coin	Paper money	Total money	M'n'y in treas	Money in circ'l'n
1860	\$235	\$207	\$442	\$7	\$435
1861	250	202	452	4	448
1862	25	333	358	24	335
1863	25	650	675	79	595
1864	25	681	706	36	670
1865	25	745	770	55	715
1866	25	729	754	81	673
1867	25	703	728	66	662
1868	25	692	717	36	680
1869	25	690	715	51	664
1870	25	698	723	48	675
1871	25	717	742	26	716
1872	25	738	763	24	738
1873	25	749	774	23	752
1874	25	781	806	30	776
1875	25	773	798	44	754
1876	52	738	791	63	728
1877	66	697	763	41	722
1878	102	689	791	62	729
1879	357	694	1,052	233	819
1880	494	712	1,206	233	973
1881	648	759	1,407	292	1,114
1882	704	777	1,481	306	1,174
1883	770	874	1,643	413	1,230
1884	801	904	1,705	462	1,244
1885	872	945	1,818	525	1,293
1886	903	906	1,809	556	1,253
1887	1,008	893	1,900	583	1,318
1888	1,092	971	2,063	691	1,372
1889	1,101	975	2,075	695	1,380
1890	1,152	992	2,144	715	1,429
1891	1,163	1,032	2,195	698	1,497
1892	1,233	1,140	2,373	771	1,601
1893	1,213	1,110	2,323	727	1,597
1894	1,252	1,169	2,420	760	1,661
1895	1,261	1,138	2,399	797	1,602
1896	1,226	1,119	2,347	841	1,506

NOTE 1.—Specie payments were suspended from Jan. 1, 1862, to Jan. 1, 1879. During the greater part of that period gold and silver coins were not in circulation except on the Pacific coast, where, it is estimated, the specie circulation was generally about \$25,000,000. This estimated amount is the only coin included in the above statement from 1862 to 1875 inclusive.

NOTE 2.—In 1876, subsidiary silver again came into use, and is included in this statement, beginning with that year.

NOTE 3.—The coinage of standard silver dollars began in 1878, under the act of Feb. 28, 1878.

NOTE 4.—Specie payments were resumed Jan. 1, 1879, and all gold and silver coins, as well as gold and silver bullion in the treasury, are included in this statement from and after that date.

NOTE 5.—The amount of gold coin and gold bullion remaining in the treasury at the end of each fiscal year since 1879 and included in the above column of coin

bullion, etc., was as follows, in millions of dollars:

1879	\$135	1885	\$247	1891	\$239
1880	126	1886	232	1892	256
1881	163	1887	278	1893	189
1882	148	1888	315	1894	131
1883	198	1889	303	1895	156
1884	205	1890	321	1896	145

About State Banks.

	No. of banks.	ASSETS.			LIABILITIES.		
		Loans.	Other. <i>a</i>	Total.	Capital. <i>b</i>	Deposits.	Other.
1873	—	119	60	179	55	111	12
1874	—	154	83	237	75	138	24
1875	551	176	96	272	85	166	21
1876	663	179	99	278	98	158	22
1877	592	267	116	383	135	227	21
1878	475	169	109	278	115	143	20
1879	616	191	125	316	127	167	22
1880	620	207	148	355	116	209	30
1881	652	251	168	419	122	261	36
1882	672	273	166	439	124	282	33
1883	754	322	190	512	140	335	37
1884	817	331	190	521	154	325	42
1885	975	348	206	554	168	344	42
1886	849	331	198	529	148	343	38
1887	1,413	436	249	685	194	447	44
1888	1,403	432	240	672	211	410	51
1889	1,671	505	291	796	234	507	55
1890	2,101	582	289	871	262	553	56
1891	2,572	623	283	906	290	557	59
1892	3,191	700	341	1,041	324	649	68
1893	3,579	758	373	1,131	324	707	100
1894	3,586	666	411	1,077	357	658	62
1895	3,774	693	455	1,148	351	712	85
1896	3,708	697	510	1,107	336	696	75

a Mainly stocks, bonds, cash and real estate.

b Including surplus and undivided profits.

Of the above state banks, 928 with a capital of \$56,596,382 reported to the treasury department for the year 1894-5 the rate of dividends that had been paid. The average was 7.2%, ranging from 4.3 in Rhode Island to as high as 8% in the Eastern States, 6.2% in Illinois, and from 5 to 13% in the West and South. Six stock savings-banks in Ohio paid an average dividend of 10.1%.

The United States tax of 10 % on the circulation of all banks other than national, prevents the issue of a banking currency. There is a very strong sentiment, especially among bankers, in favor of state banks being allowed to issue their own notes or currency, secured by all their assets. This is opposed by a powerful sentiment for two main reasons: 1. It might enable the banks to monopolize the currency, which many believe should be issued only by government. 2. It might result in currency of uncertain value, or entirely worthless, as was the case with the "wild cat" state banking currency before 1860.

Banking Power Per Capita by States.

Population of the states and territories on June 1, 1896; the aggregate capital, surplus, undivided profits, and individual deposits of national banks, etc., on or about June 30, 1896; the average of these items per capita, and the per capita averages in each class of banks and in all banks.

STATES AND TERRITORIES.	Population June 1, 1896. <i>a</i>	All Banks.		National Banks.	State Banks.	Loan and Trust.	Savings Banks.	Private Banks.
		Capital, etc.	Average per capita.	Average per capita.	Average per capita.	Average per capita.	Average per capita.	Average per capita.
Maine.....	669,000	\$95,864,085	\$143.29	\$45.88	.....	\$8.73	\$88.68	.....
New Hampshire..	393,000	84,526,263	215.08	41.85	.....	.....	173.23	.....
Vermont.....	334,000	52,660,095	157.66	53.34	.....	.....	104.32	.....
Massachusetts....	2,600,000	887,749,827	341.44	120.59	.....	41.55	179.30	.....
Rhode Island.....	391,000	145,304,110	371.62	117.21	4.64	64.02	185.75	.....
Connecticut.....	835,000	235,685,671	282.25	80.31	9.76	9.58	182.60	.....
New York.....	6,691,000	2,001,552,506	299.15	86.18	37.91	57.33	116.98	\$6.75
New Jersey.....	1,821,000	152,024,811	83.48	43.12	5.32	11.06	23.98	.....
Pennsylvania.....	6,014,000	672,441,271	111.81	60.61	9.08	26.87	13.84	1.41
Delaware.....	182,000	11,980,719	65.82	42.68	8.44	9.59	5.11	.....
Maryland.....	1,120,000	116,432,536	103.96	53.56	3.69	.26	46.18	.27
Dist. of Columbia,	284,000	27,789,545	97.85	65.49	.....	31.24	1.12	.....
Virginia.....	1,765,000	45,235,885	25.63	12.37	13.26	.....	.....	.....
West Virginia....	852,000	26,760,258	31.40	13.70	17.39	.....	.31	.....
North Carolina...	1,745,000	16,787,621	9.62	4.92	3.40	.....	.59	.71
South Carolina...	1,242,000	15,769,162	12.70	5.35	3.07	.....	4.28	.....
Georgia.....	2,020,000	20,381,555	10.09	6.12	3.79	.....	.13	.05
Florida.....	490,000	8,146,929	16.62	12.73	3.89	.....	.....	.....
Alabama.....	1,660,000	12,231,713	7.37	6.25	.69	.....	.....	.43
Mississippi.....	1,370,000	14,490,934	10.57	2.56	8.01	.....	.....	.....
Louisiana.....	1,228,000	36,364,792	29.61	18.24	8.53	.....	2.84	.....
Texas.....	2,550,000	63,311,227	24.83	22.15	.....	.51	.....	2.17
Arkansas.....	1,325,000	6,433,235	4.86	2.72	2.14	.....	.....	.....
Kentucky.....	2,010,000	81,498,358	40.54	16.54	b 24.00	.....	.....	.....
Tennessee.....	1,915,000	36,989,379	19.31	13.56	4.97	.....	.78	.....
Ohio.....	3,987,000	255,988,085	64.21	40.09	12.77	.....	9.53	1.82
Indiana.....	2,340,000	83,990,477	35.89	22.26	6.54	1.02	1.89	4.18
Illinois.....	4,305,000	308,040,811	71.55	39.50	8.08	6.11	15.01	2.85
Michigan.....	2,396,000	139,766,152	58.33	22.56	34.84	.....	.....	.93
Wisconsin.....	1,986,000	94,212,445	47.44	25.37	17.88	.60	.10	3.49
Iowa.....	2,087,000	122,287,165	58.59	20.48	12.79	2.75	17.94	4.63
Minnesota.....	1,717,000	104,009,961	60.57	29.88	19.61	3.27	6.30	1.51
Missouri.....	3,020,000	176,863,763	58.56	19.37	31.55	5.53	.....	2.11
Kansas.....	1,350,000	52,173,001	38.65	20.12	18.53	.....	.....	.....
Nebraska.....	1,532,000	54,867,361	35.81	20.20	b 15.61	.....	.....	.....
North Dakota....	340,000	10,830,396	31.85	20.44	b 11.41	.....	.....	.....
South Dakota....	560,000	12,449,111	22.23	11.31	5.76	.....	.....	5.16
Washington.....	575,000	16,101,297	28.00	22.92	2.49	.....	.....	2.59
Oregon.....	360,000	15,113,258	41.98	33.16	4.53	.....	4.29	.....
California.....	1,432,000	288,176,610	201.24	19.17	77.83	.....	102.45	1.79
Montana.....	230,000	23,615,782	102.67	86.79	6.19	.....	8.00	1.69
Idaho.....	135,000	3,260,860	24.15	21.33	.....	.....	.....	2.82
Wyoming.....	95,000	3,990,213	42.00	30.41	2.84	.....	.....	8.65
Nevada.....	44,000	1,015,016	23.07	5.40	.....	.....	.....	17.67
Utah.....	275,000	11,539,907	41.96	20.08	7.96	.....	13.92	.....
Colorado.....	595,000	40,420,587	67.93	56.30	9.59	.....	.....	2.04
Arizona.....	69,000	2,345,339	33.99	19.27	b 14.72	.....	.....	.....
New Mexico.....	177,000	3,320,612	18.76	15.61	3.15	.....	.....	.....
Oklahoma.....	150,000	1,787,734	8.58	5.24	b 3.34	.....	.....	.....
Indian Territory..	205,000	1,408,091	6.87	5.95	.....	.....	.....	.92
Total.....	71,468,000	6,695,486,521	93.69	37.14	14.44	10.95	29.91	1.25

a Estimated by the government actuary. *b* Includes private banks.

The official tables show a reported total of upward of \$5,000,000,000 in deposits in banks of all kinds, made by nearly 9,000,000 depositors, exclusive of co-operative banks. Thus about one person out of every seven or eight persons in the total population of the United States is a depositor in a bank of some kind, with an average of some \$500 in bank to his credit. Add to all this, the exhibit for co-operative banks on Page 181, and the result is still more remarkable.

Fluctuations in National Bank Deposits and Loans.

Before, during, and after the panics of 1873 and 1893.
In millions of dollars.

CALENDAR YEAR.		Late winter.	Early spring	Midsummer	Early fall.	Midwinter.
1873	Deposits,	656	617	641	623	541
	Loans,	913	912	925	944	857
1874	Deposits,	595	649	623	669	683
	Loans,	898	923	926	954	956
1878	Deposits,	603	625	622	620	599
	Loans,	855	848	835	834	826
1879	Deposits,	643	599	649	720	755
	Loans,	824	815	836	879	934
1880	Deposits,	849	792	834	874	1,006
	Loans,	974	993	995	1,041	1,071
1892	Deposits,	1,702	1,744	1,753	1,765	1,764
	Loans,	2,059	2,108	2,128	2,171	2,167
1893	Deposits,	1,751	1,750	1,557	1,451	1,539
	Loans,	2,160	2,161	2,020	1,844	1,871
1894	Deposits,	1,787	1,671	1,678	1,728	1,695
	Loans,	1,872	1,927	1,944	2,007	1,992
1895	Deposits,	1,668	1,691	1,736	1,702	1,721
	Loans,	1,965	1,989	2,017	2,059	2,020
1896	Deposits,	1,648	1,688	1,668	1,598	1,640
	Loans,	1,966	1,983	1,972	1,876	1,883
1897	Deposits,	1,669	1,728	1,770	1,851	?
	Loans,	1,886	1,923	1,967	2,049	?

Issue of Banking Currency.

Amount and denominations of national bank notes issued and redeemed since the organization of the system, in 1863, and the amount outstanding October 31, 1895.

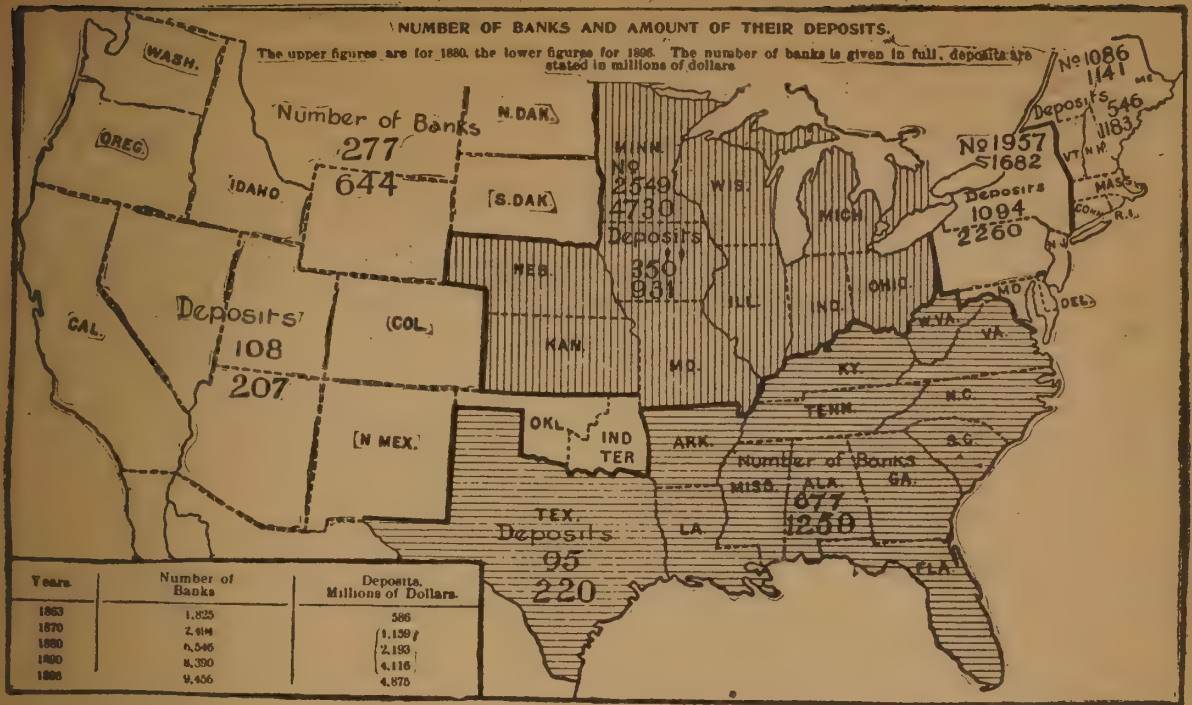
Denomination.	Number of notes.			Amount.		
	Issued	Redeemed	Outstanding	Issued	Redeemed	Outstanding
Ones.....	23,169,677	22,816,231	353,446	\$23,169,677	\$22,816,231	\$353,446
Twos.....	7,747,519	7,661,881	85,638	15,495,038	15,323,762	171,276
Fives.....	130,573,884	117,435,337	13,138,547	652,869,420	587,176,685	65,692,735
Tens.....	55,637,455	48,989,473	6,647,982	556,374,550	489,894,730	66,479,820
Twenties.....	17,565,546	15,114,940	2,450,606	351,310,920	302,298,800	49,012,120
Fifties.....	2,221,661	2,007,346	214,315	111,083,050	100,367,300	10,715,750
One hundreds..	1,738,251	1,529,111	209,140	173,825,100	152,911,100	20,914,000
Five hundreds..	23,894	23,648	246	11,947,000	11,824,000	123,000
One thousands..	7,379	7,350	29	7,379,000	7,350,000	29,000
Total.....	238,685,266	215,585,317	23,099,949	1,903,453,755	1,689,962,608	213,491,147

Premiums on Gold.

Specie payments were suspended in the United States from January 1, 1862, to January 1, 1879. The following table shows for each year the annual average.

Value in paper money of the gold dollar.				Gold value of the paper dollar.			
1862	\$1.133	1871	\$1.117	1862	\$0.883	1871	\$0.895
1863	1.452	1872	1.124	1863	.689	1872	.89
1864	2.033	1873	1.138	1864	.492	1873	.879
1865	1.573	1874	1.112	1865	.636	1874	.899
1866	1.409	1875	1.149	1866	.71	1875	.87
1867	1.382	1876	1.115	1867	.724	1876	.898
1868	1.397	1877	1.048	1868	.716	1877	.954
1869	1.33	1878	1.008	1869	.752	1878	.992
1870	1.149			1870	.87		

In comparing prices or values any year from 1862 to 1878 inclusive, with values before or since that period, it is necessary to allow for this depreciation of the paper dollar. Unless otherwise stated, values in this and other works of reference are usually expressed in currency or paper, which had a varying degree of depreciation, as the above table shows. Thus, the average export price of wheat shipped from the United States in 1866 was \$1.41 per bushel in currency, but as this dollar was worth in gold only 71c, as the average for that year, the average export value of wheat measured in gold was only \$1 per bushel, or 71% of the \$1.41. Similar calculations should be made for other articles and prices to compare values between '62 and '78 with prices since.



Banking in Canada.

Summary of the condition of the chartered banks of the Dominion of Canada on April 30, 1897, and Aug. 31, 1895. In millions of dollars.

RESOURCES.			LIABILITIES.		
	1897	1895		1897	1895
Call loans on bonds, etc.	\$13.5	\$16.8	Capital stock.....	\$62.7	\$61.7
Current loans.....	216.3	197.5	Surplus fund.....	26.8	27.1
Loans to provincial gov'm'ts	.8	.4	Bank notes outstanding ...	30.8	30.7
Overdue debts.....	3.7	4.3	Due to the Dominion gov-		
Deposits to secure circulat'n	2.8	1.8	ernment.....	4.6	4.4
Domin'n debent'r's or stocks	2.8	2.7	Due to provincial govern-		
Provincial, municipal, etc.,			ments.....	2.7	4.0
securities.....	1.9	9.4	Demand deposits.....	69.7	67.4
Railway securities.....	12.5	9.2	Time deposits.....	127.0	115.7
Due from other banks and			Due to other banks and		
agencies.....	8.2	36.9	agencies.....	5.6	8.2
Real estate, bank premises			All other liabilities.....	2.6	.2
and mortgages.....	8.2	7.4	Excess of assets.....	.7	.0
Cash on hand, viz.:					
{ Checks, etc.....	6.8	6.1			
{ Specie.....	8.7	7.4			
{ Dominion notes.....	15.8	15.2			
Total cash on hand.....	31.3	28.7			
Other resources.....	22.3	2.2			
Total.....	\$333.3	\$319.5	Total.....	\$333.3	\$319.5

Receipts of all National Banks for One Day's Business at Various Dates.

In millions of dollars.

	No. of banks.	Gold coin	Sil'r coin.	Paper currency.	Checks, drafts, etc.	Total.	Perc't checks, etc.
Jan. 30, 1881,	1,966	\$1.9	\$0.4	\$11.6	\$270.9	\$284.8	95
Sept. 17, 1881,	2,132	4.1	1.5	12.9	277.8	295.3	94
July 1, 1890,	3,364	3.7	1.4	26.5	390.2	421.8	93
Sept. 17, 1890,	3,474	3.7	1.4	24.2	298.0	327.3	91
Sept. 15, 1892,	3,473	2.9	1.4	26.8	300.1	337.2	91

The conclusion of this table is last table on Page 217.

Clearing House Operations.

BANK CLEARINGS IN THE UNITED STATES,

Millions of dollars.

	1896	1895	1894	1893	1892	1890	1887
New England.....	5,336	5,380	4,741	6,637	5,629	5,763	4,982
Middle.....	33,886	32,731	28,200	39,352	41,229	41,560	38,578
West.....	1,858	1,974	1,782	1,985	2,101	1,778	1,349
North west.....	5,872	5,873	5,540	6,601	6,610	5,205	3,705
South west.....	1,952	1,983	1,821	2,016	2,081	1,845	1,421
South.....	1,988	2,080	1,943	2,018	1,802	1,514	1,181
Pacific.....	1,086	1,062	1,001	1,272	1,431	1,182	910
Total United States.....	51,978	50,975	45,028	58,881	60,884	58,845	52,172
New York City alone.....	28,871	28,264	24,230	34,421	36,280	37,661	34,873

Observe that the volume of business in the United States, as measured by bank clearings, fell off 25% in the hard times year of '94 compared with '92. Returns for nine months to Oct. 1, 1897, indicate that clearings for the whole year 1897 may equal, if not exceed, those of 1894. The earliest complete data are for 1884, when bank clearings in the United States were \$47,387,000,000, of which \$34,092,000,000 were for New York city alone, against \$35,461,000,000 in that city for 1873, and \$48,566,000,000 in 1881.

Comparative Statement of the Transactions of the New York Clearing House.

In millions of dollars.

YEAR.	No. of b'ks	Capital.	Clearings.	Average daily clearings.	Bal. to clearings Per cent.
1854	50	\$47	\$5,750	\$19	5.2
1860	50	70	7,231	23	5.3
1865	55	80	26,032	85	4.0
1870	61	84	27,805	90	3.7
1873	59	83	35,461	116	4.1
1874	59	82	22,856	75	5.7
1875	59	80	25,061	82	5.6
1876	59	82	21,597	70	5.9
1877	58	71	23,289	76	5.9
1878	57	64	22,508	74	5.8
1879	59	61	25,179	82	5.6
1880	57	60	37,182	122	4.1
1881	60	61	48,566	159	3.5
1882	61	61	46,553	152	3.4
1883	63	61	40,293	133	3.9
1884	61	60	34,092	111	4.5
1885	64	59	25,251	83	5.1
1886	63	59	33,375	109	4.5
1887	64	61	34,873	114	4.5
1888	63	61	30,864	101	5.1
1889	63	61	34,796	115	5.0
1890	64	61	37,661	123	4.7
1891	63	61	34,054	112	4.6
1892	64	60	36,280	119	5.1
1893	64	61	34,421	114	4.9
1894	65	62	24,230	80	6.5
1895	66	63	28,264	93	6.71
1896	66	61	28,871	95	6.20

Movement of Treasury Gold.

The total redemptions of notes in gold and the exports of that metal during each fiscal year since the redemption of specie payments have been as follows: In millions of dollars.

Fiscal year.	U. S. notes.	Treasury notes of 1890.	Total.	Exports of gold.	Imports of gold.
1879...	\$7.9	.....	\$7.9	\$4.5	\$5.6
1880...	3.7	.....	3.7	3.6	80.7
1881...	.2	.....	.2	2.5	100.
1882...	.....	.....	.....	32.5	34.
1883...	.1	.....	.1	11.6	17.7
1884...	.5	.....	.5	41.0	22.8
1885...	2.2	.....	2.2	8.4	26.7
1886...	6.8	.....	6.8	42.9	20.7
1887...	4.2	.....	4.2	9.7	42.9
1888...	.6	.....	.6	18.3	43.9
1889...	.7	.....	.7	59.9	10.4
1890...	.7	.....	.7	17.2	13.1
1891...	5.9	.....	5.9	86.3	18.5
1892...	5.3	\$3.7	9.1	50.1	50.1
1893...	55.3	46.7	102.1	108.6	22.1
1894...	68.2	16.5	84.8	76.9	72.9
1895...	109.7	7.5	117.3	66.1	36.4
1896...	153.3	5.3	158.6	112.3	33.5
Tot.	426.2	80.1	506.2	753.4	652.7
1897...	68.4	9.8	78.2	40.4	85.0

Net export of gold, 1879-'96..... \$100,717,057

Net import of gold, 1897..... 44,653,200

Net loss of gold from Jan. 1, 1879, to June 30, 1897..... \$56,063,857

At the principal banking centers, there is a place called the clearing house, at which the checks, drafts, etc., are daily brought from the different banks, assorted and returned to the banks upon which they are drawn, the balance being paid in cash. For instance, bank A sends to the clearing house a batch of checks, drafts, etc., including say checks for \$100,000 drawn against bank B and deposited in bank A by the lat-

Pain past is pleasure.

ter's customers. Bank B may send to the clearing house checks and drafts, including \$90,000 of checks drawn against bank A but deposited in bank B by the latter's customers. It thus appears at the clearing house that bank B owes bank A \$10,000, and this balance is paid in cash or its equivalent. It will be seen that by this method all the balance between a given group of banks can be readily adjusted in a very short time, to the great convenience of all parties concerned.

The amounts of these transactions between the banks are called clearings. The volume of clearings therefore represents to a large extent the volume of business conducted by banks of discount. Of course all banks pay out considerable cash and credits that do not go through the clearing house. Neither do the clearing house returns include the business of the many banks other than banks of discount.

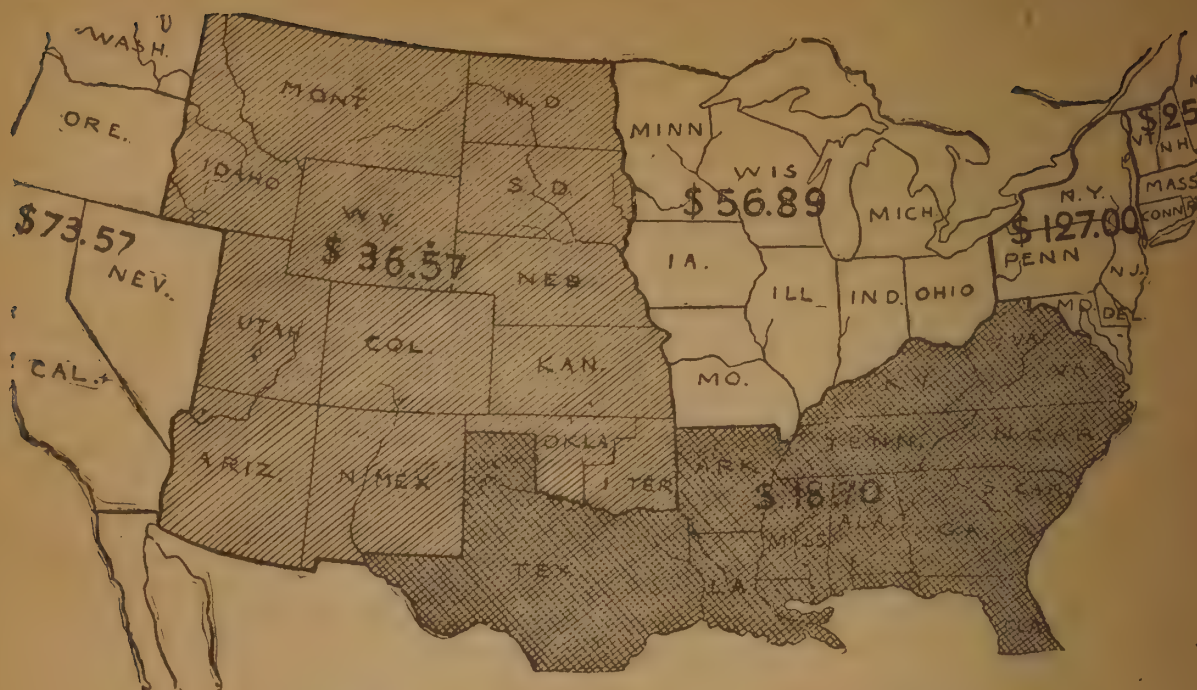
Clearings for the whole country are now compiled with great care, but formerly this was not done. The official clearings for the whole United States for the calendar year 1884 were 47,387 millions of dollars, which had increased to 56,823 millions in '91, decreasing to 50,873 millions in '95 and showing a slight increase in '96 to 51,978 millions of dollars. The transactions of the New York clearing house represent from 55 to 60 per cent of the bank clearings of the entire country. They are very complete for many years, as shown by the table on Page 226.

The per cent of balances to clearings is the amount of actual cash or its equivalent required to adjust the accounts between the different banks. It will be seen that during the good times of 1880-2, it required only 3.4 to 3.9 per cent of cash to settle the enormous daily business, exceeding 150 millions of dollars, the other 96 per cent of the business being transacted in the form of checks and drafts. With the advent of hard times in '94-'95, the per cent of cash required to settle balances was nearly double what it had been in the good times above noted, although the volume of transactions was reduced almost one-half. In other words, the loss of confidence not only reduced almost by one-half the amount of business conducted by the banks of New York city, but they were so much more cautious as to require relatively a larger proportion of actual cash than in prosperous times.

Indianapolis Monetary Commission.

About 300 delegates from 28 states composed the so-called monetary convention that met at Indianapolis, in January, 1897. It was composed largely of bankers. It appointed an executive committee to conduct the work outlined in its platform. This committee appointed the so-called monetary commission as follows: Ex-Senator George F. Edmunds of Vermont as chairman; Charles S. Fairchilds of New York, ex-secretary of the treasury under Cleveland; C. S. Patterson of Philadelphia, a lawyer, director of the Pennsylvania railroad and professor of constitutional law; J. W. Fries of North Carolina, a cotton and woolen manufacturer; E. G. Bush of Alabama, president of Clifton Iron Co and of the Mobile and Birmingham railroad; George F. Leighton, a St. Louis business man, manufacturer, and president of the sound money league; W. E. Dean, a St. Paul business man; Judge R. S. Taylor, an Indianapolis lawyer; Louis H. Garnett of San Francisco, organizer of the mint and interested in mining; Prof J. L. Laughlin of Chicago university, and Stuyvesant Fisk, president of the Illinois Central railroad.

This commission reported to the present congress in December, 1897, a scheme for carrying out the following platform, adopted by the Indianapolis convention: That the present gold standard should be maintained; that steps should be taken to insure the ultimate retirement of all classes of United States notes by a gradual and steady process, and so as to avoid injurious contraction of the currency or disturbance of the business interests of the country, and that until such retirement provision should be made for a separation of the revenue and note issue departments of the treasury; and that a banking system be provided which should furnish credit facilities to every portion of the country, and a safe and elastic circulation, and especially with a view of securing such a distribution of the loanable capital of the country as will tend to equalize the rates of interest in all parts thereof.



Why the West and South Want More Money.

The figures on this map show the total assets per capita (on Jan. 30, 1896) of national, State, private and savings banks and trust companies, averaging \$96 for the whole United States. The banking power or credit facilities of New England are 12 times greater than in the South, yet the South's natural resources are far richer. Out of New England's \$252 per capita of banking assets, \$152.50 represent deposits by the common people of small sums in savings banks, while the savings banks deposits in the Middle States are under \$35, in the South only 69c, in the Central States \$6.34, in the West \$1.68 and on the Pacific coast about \$27 per capita. This does not include assets of co-operative banks or saving fund and building associations, which for New England we find to be \$6.30 per capita, Middle States \$12.70, the Central States \$12.31, the South \$3.62, the West \$4.20 and the Pacific coast \$9.52. If we take only the banks of discount—national, state and private—the official figures (quoted by Muhleman in his New York Herald article from which our map is taken) of banking power per capita are: New England \$79, Middle States \$70, Central \$48, Western \$35, Pacific coast \$47, Southern \$18, average for whole United States \$53. We find the like figures for the 107 joint stock banks (with 3809 branches) in Great Britain to be \$113 per capita, while the total banking power of old England is about \$135 per capita (exclusive of savings institutions), or much below New England's \$152.

It is easy to see from the tables, map and chart herewith why the West and South cry out for postal and regular savings banks and for a system of banks of discount that will afford them a reasonable amount of credit facilities. Whatever may be the standard of values, it is evident that conveniences for the use of instruments of credit, as well as depositaries for small savings, are sorely needed in rural districts. Yet each of the exhibits shows a greater relative increase in both number and deposits of banks at the West and South than in the Middle or Eastern States. This is so, whether the figures taken are for national banks alone or for both these and other banks. Perhaps the most remarkable comparison is that afforded by the table on Page 220, showing development of national banks in different sections. See also the facts graphically set forth by the map on Page 225.

Capital and deposits in national banks in the New England and Middle States just about doubled between 1865 and '95, while in the West it increased six fold. The high water mark of deposits after the panic of '93 was in the fall of '95, but it appears that by summer of '97 the subsequent decrease had all been made up. See table on Page 224, Fluctuations in National Bank Deposits and Loans.

Condition of the United States Treasury

on June 30 of each year since resumption of specie payments.

In millions of dollars.

	1878	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897
Gold coin.....	\$122	\$130	\$83	\$74	\$92	\$142	\$160	\$180	\$190	\$192	\$204	\$238	\$256	\$176	\$181	\$110	\$87	\$99	\$112	\$152
Gold bullion.....	6	5	43	89	57	56	45	67	43	86	110	66	66	62	75	78	45	57	32	26
Total.....	128	135	126	163	149	198	205	247	233	278	314	304	322	238	256	188	132	156	144	178
Silver dollars.....	8	28	44	63	87	112	136	165	181	211	244	279	313	348	357	362	368	371	379	400
Silver bullion.....	7	5	5	3	3	4	4	4	3	11	11	11	11	32	77	118	127	124	119	104
Fractional coin.....	7	9	24	27	23	28	30	31	29	27	26	25	23	20	14	12	18	17	16	16
Total.....	22	42	73	93	118	144	170	200	213	249	281	315	347	400	448	492	513	512	514	520
Notes—U. S. GEN. BANKS..	72	74	33	30	35	36	40	45	41	29	52	46	24	23	35	26	78	82	121	98
National banks.....	13	8	7	5	6	8	9	10	4	2	7	4	4	6	5	4	7	5	11	5
Treasury.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10	4	7	18	30	34	31
Total.....	85	82	40	35	41	44	49	55	45	31	59	50	28	39	44	37	103	117	163	134
Certificates—Gold.....	19	.....	.....	.....	.....	23	27	14	55	30	22	37	26	32	15	1	.....	.....	.....	1
Silver.....	1	2	6	12	12	16	23	38	28	3	29	6	4	7	5	4	10	9	11	17
Currency.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	1
Total.....	20	3	6	12	12	39	50	52	83	33	51	43	30	40	20	5	10	9	11	19
Deposits in nat'l banks ..	51	202	11	12	11	15	13	13	14	23	60	47	32	28	17	16	16	16	17	19
Other assets.....	6	4	2	8	1	.....	1	2	5	5	.....	1	.....	1	.....	6	1	1	1	1
Total assets.....	314	470	260	324	331	442	488	570	536	621	766	760	759	745	785	745	775	811	853	871
Balance in treasury above liabilities.....	189	379	189	213	196	197	201	217	288	304	336	288	246	154	127	122	118	195	267	240
Net gold in treasury <i>a</i>	104	120	118	157	143	138	134	120	157	187	194	187	190	118	114	95	65	108	102	141
Net silver in treasury <i>b</i> ..	15	33	44	27	36	44	43	68	96	80	54	33	27	22	5	7	16	30	37	31

a Total less gold certificates in circulation. *b* Total less silver certificates.

The above table shows that on June 30, 1897, the amount of gold in the U S treasury was 50 millions of dollars more than at the like date in 1878, prior to the resumption of specie payments on Jan 1, 1879. The enormous increase in the stock of silver bullion and silver fractional coin has been from 22 to 520 millions. In other words, government had at the later date 500 millions more dollars in silver than was the case 19 years ago. The last two lines show how the amount of net gold and silver in the treasury would stand if coin were paid out for all the outstanding gold and silver certificates. The total assets have increased from \$14 to \$17 millions.

The improved condition of the treasury is reflected in the greater confidence of the public in the greenbacks. Over 153 millions of dollars of greenbacks were redeemed in gold in 1896, but in 1897 only 68 millions were presented for redemption, as shown by the table on Page 226. From July 1 to December, '97, the redemptions were very slight. Instead of wanting gold for their greenbacks, the business men of the country demanded greenbacks for gold, but the treasury had so much gold and so few treasury notes that it discouraged this demand as much as possible.

Metallic Money in the Banks.

Gold, silver, etc., held by national banks on July 11, 1895, and by other banks and bankers on or about the same date. In millions of dollars.

Classification.	National (3,715)	Other (6,093)	Total (9,808)
Gold coin.....	\$117.4	\$10.1	\$127.6
Gold treasury certificate.....	22.4	.....	22.4
Gold (clearing house) certificates.....	31.3	.....	31.3
Silver dollars.....	7.2	} 2.5	15.5
Silver, fractional.....	5.8		
Silver treasury certificates.....	30.1	.....	30.1
National bank notes..	19.4	.....	19.4
Legal tender notes....	123.1	α70.9	194.1
U. S. certificates for legal tender.....	45.3	.....	45.3
Fractional currency ..	1.0	.....	1.0
Specie, not classified..	.....	- 19.3	19.2
Cash, not classified ...	.....	124.8	124.8
Total	403.6	227.7	631.1

α Includes coin certificates and national bank notes.

On July 14, 1896, returns from national banks showed \$363,000,000, the principal change being a decline of about \$10,000,000 in legal tender notes and \$20,000,000 less of U. S. certificates; gold and silver about the same. Other banks gained nearly \$30,000,000 in gold, lost \$22,000,000 in legal tender notes and \$52,000,000 in cash not classified, during the year.

Kinds of Money in Banks other than National, 1895.

In millions of dollars.

	Eastern States.	Middle States.	Southern States.	Western States.	Pacific and Ter's.	Total U. S.
Gold,		\$0.5	\$2.2	\$6.6	\$0.8	\$10.1
Silver,			0.9	1.5	0.1	2.5
Specie not classified,		15.9	0.3	3.1		19.3
Paper cur'y	\$0.3	26.5	7.6	35.9	0.7	71.0
Cash not classified,	22.0	56.5	8.5	12.5	25.3	124.8
Total,	22.3	99.4	19.5	59.6	26.9	227.7

DITTO FOR JULY 1, 1896.

	Eastern States.	Middle States.	Southern States.	Western States.	Pacific and Ter's.	Total U. S.
Gold,		\$1.19	\$2.0	\$9.0	\$16.1	\$39.0
Silver,		2.8	.7	1.8	1.5	6.8
Specie not classified,			.6	1.8		2.4
Paper cur'y	.1	22.1	7.3	17.3	1.9	48.7
Cash not classified,	\$13.8	34.4	3.4	19.5	.9	72.0
Total,	13.9	71.2	14.0	49.4	20.4	168.9

Location of the Moneys of the United States, July 1, 1897.

Specially prepared for American Agriculturist Year Book by Hon. R. E. Preston, Director of the Mint.

MONEYS.	In treasury	In national banks, July 23, 1897.	In other banks and in general circulation	Total.
<i>Metallic.</i>				
Gold bullion.....	\$25,571,628	.....	.....	\$25,571,628
Silver bullion.....	106,490,744	.....	\$206,926	106,697,670
Gold coin.....	153,109,226	\$176,893,606 α	340,696,082	670,698,914
Silver dollars.....	400,053,461	6,853,275	45,087,006	451,993,742
Subsidiary silver coin	16,201,960	5,756,106	53,860,303	75,818,369
Total.....	701,427,019	189,502,987	439,850,317	1,330,780,323
<i>Paper.</i>				
Legal-tender notes (old issue).....	100,726,394	126,511,020	119,443,602	346,681,016
Legal-tender notes (Act July 14, 1890),	31,397,763	.....	83,469,517	114,867,280
Gold certificates.....	1,496,830	16,792,990	20,492,349	38,782,169
Silver certificates.....	17,630,192	34,626,625	323,222,687	375,479,504
National bank notes.....	5,123,683	28,932,602 b	197,385,401	231,441,686
Currency certificates.....	1,380,000	46,085,000	14,875,000	62,340,000
Total.....	157,754,862	252,948,237	758,888,556	1,169,591,655

α Includes \$57,426,000 gold clearing house certificates.

b Includes \$8,326,505 of their own notes held by different national banks.

Consumption of precious metals in the industrial arts, calendar year 1895: Gold, 2,108,560 oz valued at \$58,579,000; silver, 35,060,768 oz of a coining value of \$41,388,000, or a commercial value of \$21,068,000. The largest consumers were in order named; United States, England, France, Germany.

GOLD AND SILVER.

FOREIGN TRADE IN PRECIOUS METALS.

NOTES ON THE FOLLOWING TABLES.

The first table shows how much larger is the movement of gold than of silver. It appears that during almost the same period in which the United States lost 1119 million dollars of gold, France gained 1653 millions. The enormous exports from Australasia are indeed remarkable. The United Kingdom shows a net gain of 661 millions gold in the nearly 40 years covered by the table. The gains made by Austria-Hungary, Germany and the Netherlands are also notable, while thrifty Portugal shows a large increase.

The extent to which India is a sinkhole for the precious metals is strikingly illustrated by net imports of 713 millions of gold and 1826 millions of silver since 1835. Aside from India, the reported movement of silver is highly interesting. While the United States showed net exports of 389 millions, the United Kingdom has gained but little silver, though her foreign trade in the white metal (imports and exports together) has amounted to nearly 4000 million dollars against 6000 millions of gold. It is customary to speak of France as a great country for silver, but her net imports of silver, 723 millions since 1815, are not half as much as her net gain in gold. The total imports and exports of gold from France for this period exceeded 10,000 millions of dollars, against about 4000 millions for silver. Thus the French trade in the precious metals has averaged two and one-half times as much gold as silver, and she has kept at home two dollars in gold for every dollar in silver that has been added to her net importations. This fact throws a flood of light on the ability of France to sustain the bimetallic policy in times past.

Comparing the five leading commercial nations for a uniform period of thirty-eight years ended 1895, it will be seen that France gained in gold 1066 millions, while Great Britain gained only 662 millions. Besides thus keeping hold of 60 per cent more gold than England was able to do, France gained in this period ten times as much silver as did Great Britain. Austria-Hungary gained almost half as much gold as did Great Britain, but shows no material increase in silver. The United States lost heavily of both gold and silver during these thirty-eight years.

If we take the period of twenty-four years since the demonetization of silver, in 1872-3, the exhibit is even more interesting. France gained of gold 480 millions compared to England's 335 millions. Since 1872 France has also gained in silver 343 millions of dollars, or more than 20 times as much as Great Britain. Germany's net gain in gold, 534 millions of dollars, is even more remarkable, exceeding that of either Great Britain or France. We are not aware that these exhibits have before been made, but they certainly afford striking information as to the movements of precious metals during the various periods under review.

The net exports of precious metals from the United States are even more interesting. It will be seen that up to the war of 1860, the reported net exportation of gold from this country amounted to about 350

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Misfortunes never come single.

millions of dollars, against less than 100 millions of silver. During the war period, when this country owed so much money abroad, its net exportation of silver was comparatively small, as foreign creditors demanded gold, and our net exports of gold from 1860 to '72 inclusive were 555 millions of dollars. During the five years of panic and financial reconstruction ('73-'78), we exported 94 millions more gold than we imported, and it was in this period that our silver exports so increased that their net amount somewhat exceeded that of gold.

Specie payments were resumed on Jan 1, 1879, and from that date the inflow and outflow of gold has been watched with greater interest than ever. The official returns show that during the 18 years from July 1, 1879, to June 30, 1897, the United States exported only 56 million dollars more gold than it imported, as against nearly four times as much silver. If, therefore, the net imports of gold during the current fiscal year (ending June 30, 1898), reach \$56,000,000, as many judges believe will be the case, then after 18 years of specie payments, the United States will stand about even so far as the "grab for gold" is concerned.

Foreign Trade in Precious Metals.

(In millions of dollars.)

NATION.	Period.	Gold.		Silver.	
		Imports.	Exports.	Imports.	Exports.
United States.....	1825-1896	1,027	2,146	700	1,089
Australasia.....	1851-1895	15	1,614		
United Kingdom.....	1858-1895	3,362	2,701	1,958	1,925
Austria-Hungary.....	1859-1895	460	165	234	233
Germany.....	1872-1895	570	36	167	234
Netherlands.....	1851-1895	266	150	35	25
Russia.....	1871-1895	354	419	161	71
India.....	1835-1896	857	144	2,164	338
France.....	1815-1895	6,174	4,521	2,475	1,752
Belgium.....	1852-1894	443	441	93	21
Switzerland.....	1878-1895	76	34	106	55
Italy.....	1878-1895	71	92	149	119
Portugal.....	1869-1895	106	46	11	8
Japan.....	1872-1895	9	76	147	165
China.....	1881-1885	171	208	178	144
Totals.....	(various)	13,961	12,793	8,578	6,179

GOLD AND SILVER COIN AND BULLION TOGETHER.

	Imports.	Exports.		Imports.	Exports.
Scandinavia, 1871-'95,	104	57	Argentina, 1881-'95,	142	83
Mexico, 1879-'95,	—	583	Chile, 1873-'95,	16	114

Five Nations' Trade in Gold and Silver Compared.

For 38 years, 1858-'95 inclusive, except that Austria-Hungary is 1859-'95.

In millions of dollars.

	Great Britain.	France.	Germany.	Austria-Hungary.	United States.
<i>Gold.</i>					
Imports.....	\$3,363	\$2,589	α 0,000	\$460	\$880
Exports.....	2,701	1,523	0,000	165	1,678
Net gain.....	662	1,066	000	293	*798
<i>Silver.</i>					
Imports.....	1,958	1,328	000	234	480
Exports.....	1,926	990	000	233	879
Net gain.....	32	338	00	1	*399

* Loss. α Not obtainable.

Five Nations' Trade in Gold and Silver Compared—Continued.
FOR 24 YEARS, 1872-'95 INCLUSIVE.

<i>Gold.</i>	G. B.	France.	Germany.	Aus.-H.	U. S.
Imports.....	2,140	1,342	570	327	713
Exports.....	1,805	862	36	81	905
Net gain	335	480	534	246	*192
<i>Silver.</i>					
Imports.....	1,271	821	167	115	398
Exports.....	1,255	478	234	116	709
Net gain	16	343	67	1	*311

* Loss.

Net Exports from the United States
For different periods. In millions of dollars.

	Gold.	Silver.
Net exports, 1825-'97,	1,054	421
" " 1879-'97,	56	202
" " 1825-'78,	998	219
" " 1873-'78,	94	109
" " 1825-'73,	904	110
" " 1860-'72,	555	19
" " 1825-'59,	349	91

Japan's Adoption of the Gold Standard

in 1896 was accomplished by reducing its gold piece one-half. In other words, the gold yen was worth about \$1 as bullion, and the silver yen about 50c as bullion. The new gold dollar or yen, after the adoption of the gold standard, contains only half as much gold as it did before, while the silver yen is not altered. Thus the new gold yen contains bullion that is worth in London about 50c, and the silver yen contains bullion that would sell for 40 to 50c, according to what London's silver quotation may be. Thus Japan may be said to have reduced gold to a silver basis when it adopted the gold standard. The new currency law of Japan, after providing for the coinage of 20-yen, 10-yen and five-yen pieces in gold and for subsidiary coinage in silver, nickel, and copper, reads as follows:

Art XIV. Should any person import gold bullion and apply to have it minted into gold coin, the government shall grant the application.

Art XV. The gold coins already issued shall circulate at twice the rate of the gold coins issued under the provisions of this law.

Art XVI. The silver 1-yen coins already issued shall be gradually exchanged for gold coins, according to the convenience of the government, at the rate of one gold yen for one silver yen.

Pending the completion of the change referred to in the last paragraph, silver 1-yen coins shall be legal tender to an unlimited extent, at the rate of one silver yen for one gold yen; and the suspension of their circulation shall be announced six months in advance by imperial ordinance. Any of these coins not presented for exchange within a period of five full years, reckoned from the day on which their circulation is suspended, shall be regarded henceforth as bullion.

Art XVII. The 5-yen silver coins and the copper coins already issued shall continue in circulation as before.

Art XVIII. From the day of the promulgation of this law the coinage of 1-yen silver pieces shall cease, but this restriction shall not apply to silver bullion intrusted to the government for coinage prior to that day.

Money and Prices in Foreign Countries.

Elaborate reports on this subject were collected by the United States department of state in 1896, and published in Vol. XIII special consular reports. The general summary was made by Frederic Emory, chief of the bureau of statistics of this department, who aims to be impartial, though he is evidently a monometallist. Speaking of the ten years 1887-1896, he says: "Two important facts seem to have been established:

"(1) That there has been a general decline in the prices of commodities, especially in certain raw products, throughout the world. It is claimed, on the one hand, that it is due to scarcity of money, and, on the other hand, that it is to be attributed to progress in invention and increased production, both of raw materials and manufactures, causing keen competition, with the inevitable accompaniment of lower prices. It will be noted that in Mexico prices have been steadier for articles that could be most profitably exported for gold, and that sharp fluctuations, due to local scarcity of product, have occurred in such articles as wheat and corn, in which the prices have been generally downward in the markets of the world.

"(2) That there has been a general advance in wages, especially marked in the leading industrial countries, all of which have either a single gold standard or a double standard with a gold reserve. The following table summarizes the conditions and changes in the different countries in so far as they can be expressed in such form."

COUNTRY.	Standard.	Mints open to—	Per capita circulat'n.	Change in prices 1886 to 1896.		Change in wages, 1886 to 1896.	
				Decline about 9 per cent	Decline in some articles; advance in others.	Advance	General advance
United Kingdom.	Gold	Gold	\$23.13	Decline in some articles; advance in others.	General decline	Advance	General advance
Canada.	do.	British.	11.40	General decline	Decline in some articles; advance in others	No change.	No change.
Belgium.	Gold and silver	No coinage.	?	Decline in some articles; advance in others	Decline, except in beet sugar	Slight advance.	Slow but regular advance
Netherlands.	do.	Gold	25.00	Decline and advance.	Decline and advance.	General advance	General advance
France.	do.	do.	49.24	General decline.	General decline in cereals.	do.	do.
Germany.	Gold	do.	21.70	General decline.	Gen. decl'e, esp'y in food prod	General advance.	General advance.
Austria-Hungary.	do.	Gold, limited silver.	9.52	See foot note	Not given.	No change.	No change.
Switzerland.	Gold and silver	Gold only	16.25	Not given.	Not given.	No change.	No change.
Italy.	do.	do.	10.59	Not given.	Not given.	No change.	No change.
Mexico.	Actually silver.	Gold and silver.	8.34	Not given.	Not given.	No change.	No change.
British Honduras.	Gold	U. S. standard.	?	Not given.	Not given.	No change.	No change.
Nicaragua.	Silver.	No coinage.	9.40	Not given.	Not given.	No change.	No change.
Costa Rica.	Actually silver.	Gold only	25.00	Not given.	Not given.	No change.	No change.
Colombia.	Silver.	Paper.	7.58	Not given.	Not given.	No change.	No change.
Chile.	Gold	Gold	7.45	Not given.	Not given.	No change.	No change.
Egypt.	do.	No mint	2.00	Not given.	Not given.	No change.	No change.
United States.	Gold and silver	Gold	22.05	Not given.	Not given.	No change.	No change.

In the United Kingdom, farm wages declined. In Canada, wages advanced 12 per cent between 1881 and '91 in one class of industries and 18 per cent for the other. In Germany, cereals and pork and raw products for certain industries declined; increase in beef between 1886-'95, and in many lines of manufactured goods. In Rhenish-Westphalia (Germany), textile industries, wages increased from about \$143 per head in 1886, to about \$163 in 1895; in government railroad shops, from \$217 to \$244; day labor shows a general though slight advance, but in many trades the advance is marked from 1886 to 1892. Marked advance in wages of farm labor in Italy. In Mexico, no general change in prices of food products not exported; prices subject to great fluctuations; advance in prices of imported articles, except hardware and machinery; also in prices of coffee, meat and sugar; no change in unskilled labor, but advance in wages of skilled workmen. In Nicaragua, cost of imported goods has doubled, no change in prices of domestic products. The advances in Costa Rica and Colombia are as measured in silver or paper currency. Chile reports increase in prices of wheat, wool, tallow, linseed, barley, flour, but decreases in Indian corn, beans, cheese and butter. In British Honduras, Vice Consul Hempstead reports that wages are doubled in purchasing power by adoption of gold standard.

The World's Money in 1873 and 1896.

THE MONEY OF THE WORLD.—1873.

Approximate stocks of money in the aggregate and per capita in the principal countries of the world. From Mint Report, 1896.

Country.	In millions.				Per Capita.			
	Popula- tion.	Stock of gold.	Stock of silver.	Uncover- ed paper.	Gold.	Silver.	Paper.	Total.
United States.....	41.7	\$135	\$6	\$749	\$3.24	\$0.15	\$17.97	\$21.36
Great Britain.....	31.8	160	95	60	5.03	2.99	1.88	9.90
France.....	36.1	450	500	385	12.47	13.85	10.67	36.99
Germany.....	41.0	160	306	91	3.91	7.47	2.21	13.59
Russia.....	82.2	149	19	618	1.81	.23	7.52	9.56
Italy.....	26.8	20	23	88	.75	.86	3.27	4.88
Belgium.....	5.2	25	15	35	4.81	2.88	6.75	14.44
Netherlands.....	3.9	12	37	15	3.08	9.56	3.92	16.56
Austria-Hungary..	35.9	35	40	266	.98	1.11	7.40	9.49
Australasia.....	2.6	50	3		19.23	1.15		20.38
Denmark.....	1.8	4	8	7	2.28	4.16	3.61	10.05
Sweden.....	4.4	2	4	6	.41	.98	1.36	2.75
Norway.....	1.8	8	2	2	4.22	.89	1.28	6.39
Total.....	315.2	1210	1258	2322	3.83	3.35	7.36	\$14.54

THE MONEY OF THE WORLD.—1896.

Monetary systems and approximate stocks of money in the aggregate and per capita in the principal countries of the world, 1896. From Circular 123, United States Treasury Department.

Countries.	Monetary system.	Ratio, 1 to	Population	Stock of gold.	Stock of Silver.			Uncovered paper.	Per capita.			
					Full tender.	Limited tender.	Total.		Gold.	Silver.	Paper.	Total.
United States....	G&S	15.98	71.4	\$600	\$550	\$76	\$626	\$383	\$8.41	\$8.77	\$5.37	\$22.55
United Kingdom	G		38.9	580		115	115	113	14.91	2.96	2.91	20.78
France.....	G&S	15½	38.3	850	430	58	489	32	22.19	12.94	.84	35.97
Germany.....	G		51.2	625	105	110	215	60	12.21	4.20	1.18	17.59
Belgium.....	G&S	15½	6.3	55	48	7	55	65	8.73	8.71	10.38	27.82
Italy.....	G&S		30.7	98	21	20	41	192	3.20	1.35	6.24	10.79
Switzerland....	G&S		3.0	15	10	5	15		4.97	5.00		9.97
Greece.....	G&S		2.2	1	1	1	2	22	.23	.68	10.18	11.09
Spain.....	G&S		17.5	40	126	40	166	89	2.28	9.49	4.78	16.55
Portugal.....	G		5.1	38		25	25	55	7.45	4.86	10.80	23.11
Roumania.....	G&S		5.8	39		11	11	12	6.65	1.83	2.02	10.50
Servia.....	G&S		2.3	3		2	2	4	1.30	.83	1.65	3.78
Austria-Hungary	G		43.5	140	80	40	120	204	3.22	2.76	4.69	10.67
Netherlands.....	G&S	15½	4.7	29	53	3	56	27	6.21	11.96	6.08	24.25
Norway.....	G		2.0	8		2	2	4	3.75	1.00	1.90	6.65
Sweden.....	G		4.8	8		5	5	2	1.66	1.00	.43	3.10
Denmark.....	G		2.3	15		5	5	5	6.30	2.35	2.35	11.00
Russia.....	S	15½	126.0	480		48	48	539	3.80	.38	4.28	8.46
Turkey.....	G&S	15½	22.0	50	30	10	40		2.27	1.82		4.09
Australia.....	G		4.7	115		7	7		24.47	1.49		25.96
Egypt.....	G		6.8	120		15	15		17.65	2.20		19.85
Mexico.....	S	16½	12.1	5	55		55	2	.41	4.54		4.95
Central America	S	15½	5.6	1	12		12	8	.09	2.14	1.43	3.66
South America..	S	15½	36.0	40	30		30	550	1.11	.83	15.28	17.22
Japan.....	G&S	16.18	41.1	80	68	16	84		1.95	2.05		4.00
India.....	G&S	15	296.0		950		950	37		3.21	.12	3.33
China.....	S		360.0		750		750			2.08		2.08
Straits Settlements	S		3.8		115		115			30.26		30.26
Canada.....	G		4.8	14		5	5	29	2.92	1.04	6.04	10.00
Cuba.....	G&S	15½	1.8	18	2		2		10.00	.83		10.83
Hayti.....	G&S	15½	1.0	3	2	1	3	4	3.00	2.90	4.20	10.10
Bulgaria.....	G&S	15½	4.3	1	3	3	7		.18	1.58		1.76

α In millions. β In dollars and cents..

Changes in World's Money, 1873-1896.

Approximate stock of gold, silver and uncovered paper money in the principal countries of the world in 1873 and 1896, and changes between these dates. From report of comptroller of the currency, 1896.

(In millions of dollars.)

Country.	Gold.			Silver.			Uncovered Paper.		
	1873	1896	Increase.	1873	1896	Increase.	1873	1896	Increase.
United States.....	\$135	\$672.2	\$537.2	\$6.2	\$631.4	\$625.2	\$749.4	\$424.4	\$325
Great Britain.....	160	584	424	95	121.7	26.7	59.8	118.8	52
France.....	450	772	322	500	492.2	7.8	385.3	98	287.3
Germany.....	160.2	675	514.8	306.2	207	99.2	90.8	126.1	35.3
Russia.....	149.1	488.6	339.5	18.6	43.5	24.9	618.4	467.2	151.2
Italy.....	20	100.4	80.4	23	39	16	87.8	168.5	80.7
Belgium.....	25	50	25	15	57	42	35.1	72.5	37.4
Netherlands.....	12	26.8	14.8	37.3	56.2	18.9	15.3	32.5	17.2
Austria-Hungary.	35	167.2	132.2	40	65	25	265.8	204.5	61.3
Australasia.....	50	130	80	3	7	4			
Denmark.....	4.1	16.5	12.4	7.5	5.4	2.1	6.5	4.6	1.9
Sweden.....	1.8	8.5	6.7	4.3	4.9	.6	6		6
Norway.....	7.6	7.5	.1	1.6	2	.4	2.3	3.8	1.5
Total.....	1,209.8	*3,698.7	2,488.9	1,057.7	1,732.3	*674.6	2,322.5	1,713.9	†608.6

* Net increase. † Net decrease. Figures in black type signify decrease.

Summary of world's stock of money (thirteen commercial nations). Original.

	1896	1873	Increase.	Decrease.
Gold money, millions....	\$3,699	\$1,210	\$2,489	
Silver money ".....	1,732	1,058	674	
Uncovered paper, ".....	1,714	2,322		608
Total money.....	7,145	4,590	2,555	
Population (millions).....	425	315	110	
Per capita gold.....	\$8.70	\$3.83	\$4.87	
Per capita silver.....	4.07	3.35	.72	
Per capita paper.....	4.03	7.36		3.33
Total.....	16.80	14.54	2.26	

PER CAPITA MONEY BY COUNTRIES.

Country.	Year.	Gold.	Silver.	Total.	Paper.	Aggregate
United States.....	1896	\$8.41	\$8.77	\$17.18	\$5.37	\$22.55
".....	1873	3.24	.15	3.39	17.97	21.36
Great Britain.....	1896	14.91	2.96	15.87	2.91	20.78
".....	1873	5.03	2.99	8.02	1.88	9.90
France.....	1896	22.19	12.94	35.13	.84	35.97
".....	1873	12.47	13.85	26.32	10.67	36.99
Germany.....	1896	12.21	4.20	16.41	1.18	17.59
".....	1873	3.91	7.47	11.38	2.21	13.59

During the period from 1873 to 1896, according to the above official statistics, population in these thirteen nations increased 35 per cent; changes in stock of money:

	Total Stock of Money.	Per Capita Supply of Money.
Gold increased.....	205 per cent	127 per cent
Silver increased.....	65 per cent	21 per cent
Paper decreased.....	21 per cent	45 per cent
Total money increased....	56 per cent	15 per cent

EXPANSION OF CREDIT.—All deposits in all banks in the United States for 1870, so far as reported (including State bank returns for '73 instead of '70), were \$30 per capita of the United States population, compared to \$68 per capita for the same group (but largely increased number) of banks in 1896. The total loans by all these banks for the earlier dates are not available. But national bank loans in 1873 were \$926,000,000, compared to \$1,959,000,000 in 1896, or \$27.44 per capita now, compared to \$22.21 then.

Loans of the national banks of England, Germany, France, Austria-Hungary, Belgium and the Netherlands (see History of Banking), were \$515,000,000 in 1876, and \$965,000,000 in 1896. From 1873 to 1896 population of these nations increased from 153,900,000 to 185,600,000. Thus, in these six foreign countries loans increased 87 per cent, while population increased 20 per cent. Applying population of 1873 to loans of 1876, national banks of these six nations had loans of \$3.35 per capita in 1876, against \$5.20 in 1896.

The World's Production of Silver and Gold

Since the discovery of America. From Report of the Director of the United States Mint.

a In millions.

	a Gold.				a Silver.				Percentage of production.			
	Annual av for period.		Total for period.		Annual av for period.		Total for period.		By weight.		By value.	
	Oz fine	Value	Oz fine	Value	Oz fine	Value	Oz fine	Value.	G	S	G	S
1493-1520	0.2	\$3.8	5.2	\$108	2	\$3	42	\$55	11.0	89.0	66.4	33.6
1521-1544	0.2	4.8	5.5	114	3	4	70	90	7.4	92.6	55.9	44.1
1545-1560	0.3	5.7	4.4	91	10	13	160	207	2.7	97.3	30.4	69.6
1561-1580	0.2	4.5	4.4	91	10	13	193	250	2.2	97.8	26.7	73.3
1581-1600	0.2	4.9	4.7	98	14	17	269	348	1.7	98.3	22.0	78.0
1601-1620	0.3	5.7	5.5	113	14	18	272	352	2.0	98.0	24.4	75.6
1621-1640	0.3	5.5	5.3	110	13	16	253	327	2.1	97.9	25.2	74.8
1641-1660	0.3	5.8	5.6	117	12	15	236	305	2.3	97.7	27.7	72.3
1661-1680	0.3	6.2	6.0	123	11	14	217	280	2.7	97.3	30.5	69.5
1681-1700	0.3	7.2	6.9	143	11	14	220	284	3.1	96.9	33.5	66.5
1701-1720	0.4	8.5	8.2	170	11	15	229	296	3.5	96.5	36.6	63.4
1721-1740	0.6	12.7	12.3	254	14	18	277	359	4.2	95.8	41.4	58.6
1741-1760	0.8	16.4	15.8	327	17	22	343	443	4.4	95.6	42.5	57.5
1761-1780	0.7	13.8	13.3	275	21	27	420	543	3.1	96.9	33.7	66.3
1781-1800	0.6	11.8	11.4	237	28	37	565	731	2.0	98.0	24.4	75.6
1801-1810	0.6	11.8	5.7	118	29	37	288	372	1.9	98.1	24.1	75.9
1811-1820	0.4	7.6	3.7	76	17	23	174	225	2.1	97.9	25.3	74.7
1821-1830	0.5	9.4	4.6	95	15	19	148	191	3.0	97.0	33.0	67.0
1831-1840	0.7	13.5	6.5	135	19	25	192	248	3.3	96.7	35.2	64.8
1841-1850	1.8	36.4	17.7	364	25	32	251	324	6.6	93.4	52.9	47.1
1851-1855	6.4	132.5	32.1	663	29	37	142	184	18.4	81.6	78.3	21.7
1856-1860	6.5	134.1	32.4	670	29	38	146	188	18.2	81.8	78.1	21.9
1861-1865	5.9	123.0	29.7	615	35	46	177	229	14.4	85.6	72.9	27.1
1866-1870	6.3	129.6	31.4	648	43	56	215	278	12.7	87.3	70.0	30.0
1871-1875	5.6	115.6	28.0	578	63	82	317	409	8.1	91.9	58.5	41.5
1876-1880	5.5	114.6	27.7	573	79	102	394	509	6.6	93.4	53.0	47.0
1881-1885	4.8	99.1	24.0	496	92	119	460	595	5.0	95.0	45.5	54.5
1886	5.1	106.2	5.1	106	93	121	93	121	5.2	94.8	46.8	53.2
1887	5.1	105.8	5.1	106	96	124	96	124	5.0	95.0	45.9	54.1
1888	5.3	110.2	5.3	110	109	141	109	141	4.6	95.4	43.9	56.1
1889	6.0	123.5	6.0	124	120	155	120	155	4.7	95.3	44.3	55.7
1890	5.7	118.8	5.7	119	126	163	126	163	4.3	95.7	42.1	57.9
1891	6.3	130.7	6.3	131	137	177	137	177	4.4	95.6	42.4	57.6
1892	7.1	146.8	7.1	147	153	198	153	198	4.4	95.6	42.5	57.5
1893	7.6	157.3	7.7	157	166	215	166	215	4.4	95.6	42.4	57.6
1894	8.7	180.6	8.7	181	168	217	168	217	4.9	95.1	45.6	54.4
1895	9.8	203.0	9.8	203	175	226	175	226	5.3	94.7	47.3	52.7
Total from 1493 to 1896			424.6	\$8784			8011	\$10359	5.0	95.0	45.9	54.1

This table shows a total reported product in the world from 1493 to 1895 inclusive of 425,000,000 ounces of gold, and 8,011,000,000 ounces of silver. Thus, the reported weight is 5 per cent gold and 95 per cent silver.

The value of this gold is \$8,784,000,000, compared to \$10,359,000,000 as the "coining value" of the silver (which is reckoned in the official tables at 16 to 1). Thus, of the total value of these precious metals, 46 per cent is gold and 54 per cent silver.

World's Production and Coinage of Gold and Silver.

See tables on Pages 238 and 239. Rearranged from the Report of the Director of the Mint. "The table of coinage includes old coins recoined. The amount of recoinage of gold coins in the United States during the above period is \$45,344,422, and of silver coins \$36,616,971.14. It is not practicable to state the recoinage of other nations, as the reports received do not state it separately. The recoinage of gold in the United States is much smaller, in proportion to our total coinage of gold, than in most foreign countries, because in the United States coin is represented in circulation principally by paper money." [This recoinage of old coins, also the coinage of old metal or plate, and the coinage of gold whose production escaped mention in the official tables accounts for the fact that during the 22 years under review, the coinage of gold exceeded by over 42,000,000 ounces the reported production of gold. The reported production of silver during these 22 years (1873-'94) exceeds by only 500,000 ounces the reported coinage. Manifestly, there is a considerable production of the precious metals that is not included in the official tables.—Editor.]

World's Production and Coinage of Gold and Silver.—Continued.

Calendar years.	Millions of Ounces.				Millions of Dollars.				Commer- cial value of silver produced
	Gold, fine oz.		Silver, fine oz.		Value of gold		Coining val. of silver.		
	Proce'd	Coined	Proce'd	Coined	Proce'd	Coined	Proce'd	Coined	
1873	4.7	12.5	63	102	\$96	\$258	\$82	\$132	\$82
1874	4.4	6.6	55	80	91	136	72	103	71
1875	4.7	9.5	62	93	98	196	81	120	78
1876	5.0	10.3	68	98	104	213	88	127	78
1877	5.5	9.8	63	88	114	202	81	114	75
1878	5.8	9.1	73	125	119	188	95	161	85
1879	5.3	4.4	74	81	109	91	96	105	84
1880	5.1	7.2	75	65	106	150	97	85	86
1881	5.0	7.1	79	84	103	147	102	108	90
1882	4.9	4.8	87	86	102	100	112	111	98
1883	4.6	5.1	89	85	95	105	115	109	99
1884	4.9	4.8	82	74	102	99	106	96	91
1885	5.2	4.6	92	98	108	96	119	127	98
1886	5.1	4.6	93	97	106	95	121	125	93
1887	5.1	6.0	96	126	106	125	124	163	94
1888	5.3	6.5	109	104	110	135	141	135	102
1889	6.0	8.2	120	108	124	169	155	139	112
1890	5.7	7.2	126	118	119	149	163	152	132
1891	6.3	5.8	137	107	131	120	177	138	136
1892	7.1	8.3	153	120	147	173	198	156	133
1893	7.6	11.2	166	107	157	232	215	138	130
1894	8.7	11.0	168	88	181	228	217	113	107
1895	9.8	9.5	175	119	203	196	226	153	114
Total,	132.0	174.2	2,307	2,251	\$2,730	\$3,601	\$2,980	\$2,909	\$2,266
U. S. '73-95	40.2	48.3	940	421	831	997	1,215	544	943
World									
1860-72,	78.7	.....	548	.....	1,628	.....	708	.....	730

United States Production and Coinage of the Precious Metals.

Calendar years.	Millions of Ounces.				Millions of Dollars.				Commer- cial value of silver produced
	Gold, fine oz.		Silver, fine oz.		Value of gold.		Coining val. of silver.		
	Proce'd	Coined	Proce'd	Coined	Proce'd	Coined	Proce'd	Coined	
1873	1.7	2.8	27.7	3.1	\$36.0	\$57.0	\$35.8	\$4.0	\$35.9
1874	1.6	1.7	28.8	5.3	33.5	35.3	37.3	6.9	36.9
1875	1.6	1.6	24.5	11.9	33.4	33.0	31.7	15.3	30.5
1876	1.9	2.3	30.0	19.0	39.9	46.6	38.8	24.5	34.7
1877	2.3	2.1	30.8	22.0	46.9	44.0	39.8	28.4	37.0
1878	2.5	2.4	35.0	22.1	51.2	49.8	45.2	28.5	40.3
1879	1.9	1.9	31.6	21.3	38.9	39.1	40.8	27.6	35.4
1880	1.7	3.0	30.3	21.2	36.0	62.3	39.2	27.4	34.7
1881	1.7	4.7	33.3	21.6	34.7	96.9	43.0	27.9	37.9
1882	1.6	3.2	36.2	21.6	32.5	65.9	46.8	28.0	41.1
1883	1.5	1.4	35.7	22.6	30.0	29.2	46.2	29.2	39.7
1884	1.5	1.2	37.8	22.1	30.8	24.0	48.8	28.5	42.1
1885	1.5	1.3	39.9	22.4	31.8	27.8	51.6	29.0	42.5
1886	1.7	1.4	39.4	24.8	35.0	29.0	51.0	32.1	39.2
1887	1.6	1.2	41.2	27.2	33.0	24.0	53.4	35.2	40.4
1888	1.6	1.5	45.8	25.5	33.2	31.4	59.2	33.0	43.0
1889	1.6	1.0	50.0	27.5	32.8	21.4	64.6	35.5	46.8
1890	1.6	1.0	54.5	30.3	32.8	20.5	70.5	39.2	57.2
1891	1.6	1.4	58.3	21.3	33.2	29.2	75.4	27.5	57.6
1892	1.6	1.7	63.5	9.8	33.0	34.8	82.1	12.6	55.6
1893	1.7	2.8	60.0	6.8	36.0	57.0	77.6	8.8	46.8
1894	1.9	3.8	49.5	7.1	39.5	79.5	64.0	9.2	31.4
1895	2.3	2.9	55.7	4.4	46.6	59.6	72.1	5.7	36.4
Totals,	40.2	48.3	939.6	420.9	\$830.7	\$997.3	\$1,214.7	\$544.0	\$943.1
1860-72	29.0	.....	118.0	.....	599.7	.....	152.6	.....	157.4
1896	2.6	2.3	58.8	17.7	53.1	47.1	76.1	23.1	39.7

A living dog is better than a dead lion.

Earlier Production and Coinage in the United States.

The gold produced in the United States from 1792 to the close of 1844 is officially estimated at \$21,500,000, and of silver \$250,000. From that year to 1873 the official figures report only values and not quantities, but as the ratio did not fluctuate materially during these 40 years, the weight in fine ounces is not important. Official figures follow, in millions of dollars:

Calendar years.	Gold value.		Silver value.		Calendar years.	Gold value.		Silver value.	
	Proce'd	Coined	Proce'd	Coined		Proce'd	Coined	Proce'd	Coined
1845	\$1.0	\$3.8	\$0.1	\$1.9	1860	\$46.0	\$23.5	\$0.2	\$2.3
1846	1.1	4.0	0.1	2.6	1861	43.0	83.4	2.0	3.8
1847	0.9	20.2	0.1	2.4	1862	39.2	20.9	4.5	1.3
1848	10.0	3.8	0.1	2.0	1863	40.0	22.4	8.5	.8
1849	40.0	9.0	0.1	2.1	1864	46.1	20.1	11.0	.6
1850	50.0	32.0	0.1	1.9	1865	53.2	28.3	11.3	.7
1851	55.0	62.6	0.1	.8	1866	53.5	31.4	10.0	1.0
1852	60.0	56.8	0.1	1.0	1867	51.7	23.8	13.5	.9
1853	65.0	39.4	0.1	9.1	1868	48.0	19.4	12.0	1.1
1854	60.0	25.9	0.1	8.6	1869	49.5	17.6	12.0	1.3
1855	55.0	29.4	0.1	3.5	1870	50.0	23.2	16.0	1.4
1856	55.0	36.9	0.1	5.1	1871	43.5	21.0	23.0	3.1
1857	55.0	32.2	0.1	5.5	1872	36.0	21.8	28.8	2.5
1858	50.0	22.9	0.5	8.5					
1859	50.0	14.8	0.1	3.3	Total,	\$1207.7	\$750.5	\$154.7	\$79.1

Market Prices of Silver Bullion and Coin.

It is contended by many that if the mints of the United States had been opened to the unlimited coinage of silver at the ratio of 16 to 1, the recent decline in the price of silver would not have occurred. Others contend to the contrary. However that may be, the quotations on silver in the market afford the following comparative table, compiled from the mint report.

A—This column shows the bullion value of 371½ grains of pure silver (the amount in the standard silver dollar) at the annual average London price of silver each year.

B—This column shows the average annual value of an ounce of pure silver in the London market, expressed in U. S. currency.

C—This column shows the ratio of gold to silver; that is, the number of ounces of silver required to purchase one ounce of gold, at the annual average price stated in Column B. Soetbeer's tables show the ratio from 1687 to 1700 to have averaged 14.97; 1701 to 1725 averaged 15.18; 1726 to 1750 was 15.02; 1751 to 1775 was 14.67; 1776 to 1800 averaged 15; 1801 to 1830 the ratio averaged 15.63. During the last century the ratio fluctuated from 14.39 to 15.37. The figures for 1897 are averages for first six months.

	A				B				C		
	Val of silver dollar.	Av val silver per oz.	Ratio to gold 1 to		Val of silver dollar.	Av val silver per oz.	Ratio to gold 1 to		Val of silver dollar.	Av val silver per oz.	Ratio to gold 1 to
1833	\$1.003	\$1.297	15.93	1855	\$1.039	\$1.344	15.38	1877	\$.929	\$1.201	17.22
1834	1.020	1.313	15.73	1856	1.039	1.344	15.38	1878	.891	1.152	17.94
1835	1.011	1.308	15.80	1857	1.046	1.353	15.27	1879	.868	1.123	18.40
1836	1.019	1.315	15.72	1858	1.039	1.344	15.38	1880	.886	1.145	18.05
1837	1.009	1.305	15.83	1859	1.052	1.360	15.19	1881	.880	1.138	18.16
1838	1.009	1.304	15.85	1860	1.045	1.352	15.29	1882	.878	1.136	18.19
1839	1.023	1.323	15.62	1861	1.031	1.333	15.50	1883	.858	1.110	18.64
1840	1.023	1.323	15.62	1862	1.041	1.346	15.35	1884	.861	1.113	18.57
1841	1.018	1.316	15.70	1863	1.040	1.345	15.37	1885	.823	1.064	19.41
1842	1.007	1.303	15.87	1864	1.040	1.345	15.37	1886	.769	.994	20.78
1843	1.003	1.297	15.93	1865	1.035	1.338	15.44	1887	.756	.978	21.13
1844	1.008	1.304	15.85	1866	1.036	1.339	15.43	1888	.727	.940	21.99
1845	1.004	1.298	15.92	1867	1.027	1.328	15.57	1889	.723	.935	22.10
1846	1.005	1.300	15.90	1868	1.025	1.326	15.59	1890	.809	1.046	19.76
1847	1.011	1.308	15.80	1869	1.024	1.325	15.60	1891	.764	.981	20.92
1848	1.008	1.304	15.85	1870	1.027	1.328	15.57	1892	.673	.871	23.72
1849	1.013	1.309	15.78	1871	1.025	1.326	15.57	1893	.603	.780	26.49
1850	1.018	1.316	15.70	1872	1.022	1.322	15.63	1894	.491	.635	32.56
1851	1.034	1.337	15.46	1873	1.044	1.298	15.92	1895	.505	.654	31.60
1852	1.025	1.326	15.59	1874	.988	1.278	16.17	1896	.528	.681	30.32
1853	1.042	1.348	15.33	1875	.964	1.246	16.59	1897	.501	.655	31.94
1854	1.042	1.348	15.33	1876	.894	1.156	17.88				

World's Production of Gold and Silver by Countries.

In thousands of ounces, last three figures (000's) omitted.

COUNTRIES.	SILVER.				GOLD.			
	1895	1894	1893	1892	1895	1894	1893	1892
United States.....	55,727	49,500	60,000	63,500	2,255	1,911	1,739	1,596
Australasia.....	12,507	18,073	20,502	13,439	2,167	2,020	1,726	1,652
Mexico.....	46,963	47,038	44,362	39,505	290	218	63	55
European Countries.....								
Russia.....	402	276	325	465	1,398	1,167	1,345	1,200
Germany.....	5,818	6,810	6,373	6,818	108	104	73	101
Austria-Hungary.....	2,184	2,685	2,897	1,771	96	87	82	73
Sweden.....	38	192	144	2	3	3	3	3
Norway.....	196	151	144	145				
Italy.....	929	929	929	1,281	6	6	6	4
Spain.....	3,530	2,045	2,013	1,488				
Greece.....	1,139	1,139	65	65				
Turkey.....	49	49	204	204				
France.....	841	3,153	3,153	2,980				
Great Britain.....	280	255	253	169	5	3	2	2
Dominion of Canada.....	1,776	848	249	345	92	50	45	44
South American Countries..								
Argentine Republic.....	328	1,200	708	480	15	5	7	4
Colombia.....	1,688	1,688	1,688	1,314	140	140	140	168
Bolivia.....	22,000	22,000	13,631	10,715	3	3	3	3
Ecuador.....	8	8	8	8	3	3	3	3
Chile.....	5,032	2,851	3,129	3,240	68	22	22	29
Brazil.....					107	107	107	107
Venezuela.....					44	41	39	39
Guiana (British).....					107	112	124	116
Guiana (Dutch).....					24	31	34	35
Guiana (French).....					126	64	48	48
Peru.....	3,163	3,461	1,905	1,905	3	4	4	4
Uruguay.....					1	7	7	7
Central American States....	1,547	1,547	1,547	1,547	23	23	8	8
Japan.....	2,165	1,957	1,864	1,767	25	24	23	25
China.....					170	414	333	408
Africa.....					2,155	1,948	1,400	1,172
India (British).....					225	188	184	161
Korea.....					33	22	28	29
Total.....	168,310	167,755	166,093	153,153	9,692	8,736	7,607	7,102

Total production of precious metals by 12-year periods, for the United States, other countries and the world. Compiled from official tables. Original. In millions of ounces.

Years inclusive.	Gold.			Silver.		
	U. S.	Other	W'rld	U. S.	Other	W'rld
1849-'60	31.0	36.9	67.9		337	338
1861-'72	26.8	45.5	72.3	118	430	548
1873-'84	21.5	38.4	59.9	382	488	870
1885-'96	21.3	a60.5	a81.8	617	a976	a1593

a Other countries' production for 1896, estimated same as for 1895.

Production of precious metals in single years that mark important dates, for the United States, other countries, and the world. In millions of ounces.

Year.	Gold.			Silver.		
	U. S.	Other	W'rld	U. S.	Other	W'rld
1849	2.4			a		
1859	2.4	4.1	6.5	a	29	29
1873	1.7	2.9	4.6	27	36	63
1895	2.2	1.7	9.6	56	112	168

a In 1849, 3,846 ozs.; in 1859, 11,538 ozs.

United States imports and exports of gold and silver for a series of years, by countries. In millions of dollars.

GOLD.

Period.	United Kingd'm	France	Germ'ny
	1874-'95	1879-'95	1879-'95
U. S. exports to	338	152	142
" imports from	234	132	115
" net exports	104	20	27

SILVER.

U. S. exports to	372	9	5
" imports from	16	1	2
" net exports	356	8	7

Total exports of gold from United States, 1874-'95, were \$810,000,000, imports \$706,000,000, net exports \$104,000,000. Thus, while the United Kingdom took 41 per cent of our gold exports during this period, she furnished only 33 per cent of our imports, so that all our net export of gold (\$104,000,000) really went to England. United States exported \$643,000,000 in silver, importing \$380,000,000, or net exports of silver, 1874-'95, of \$263,000,000. England's net imports of U. S. silver were 57 per cent of our total exports.

Per Capita Stock of Money in 1873 and 1896, compiled from the Report of the Director of the United States Mint for 1896. The figures following the name of each country show the total stock of money for each inhabitant of that country in 1873 and also 1896. The figures on the chart show how much of this total consisted of gold money, how much was silver money, and how much was uncovered paper money.

GOLD SILVER PAPER

THE WORLD, 1873, \$14.54; 1896, \$16.80. (13 Commercial Nations.)

'73	3.83	3.35	7.36	
'96	8.70	4.07	4.03	

UNITED STATES, 1873, \$21.36; 1896, \$22.55.

'73	3.24	.15	17.97	
'96	8.41	8.77	5.37	

GERMANY, 1873, \$13.59; 1896, \$17.59.

'73	3.91	7.47	2.21	
'96	12.21	4.20	1.18	

FRANCE, 1873, \$36.99; 1896, \$35.97.

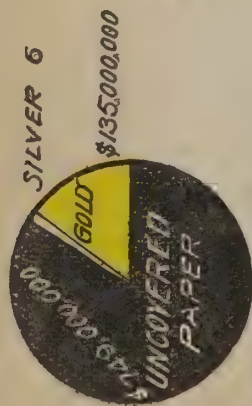
'73	12.47	13.85	10.67	
'96	22.19	12.94	.84	

GREAT BRITAIN, 1873, \$9.90; 1896, \$20.78.

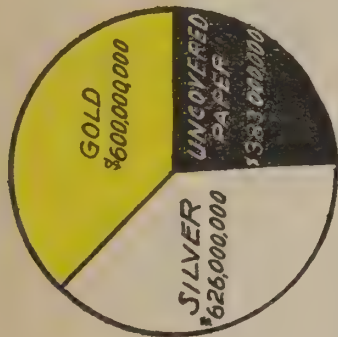
'73	5.05	3.35	1.88	
'96	8.70	4.07	2.91	

Total Stocks of Money, 1873 and 1896

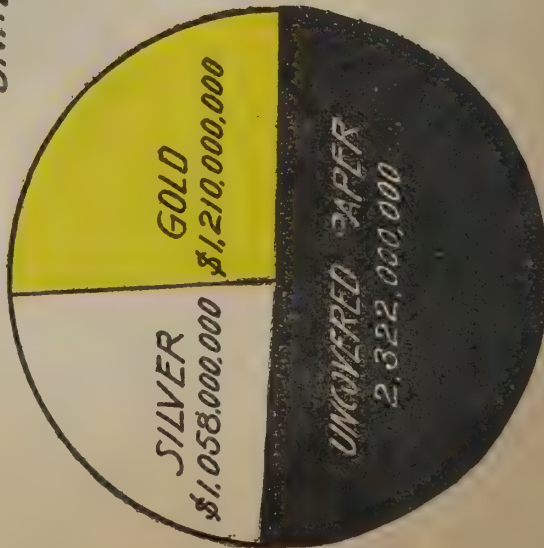
Compared to the World's Stock in 1873



UNITED STATES 1873



UNITED STATES 1896



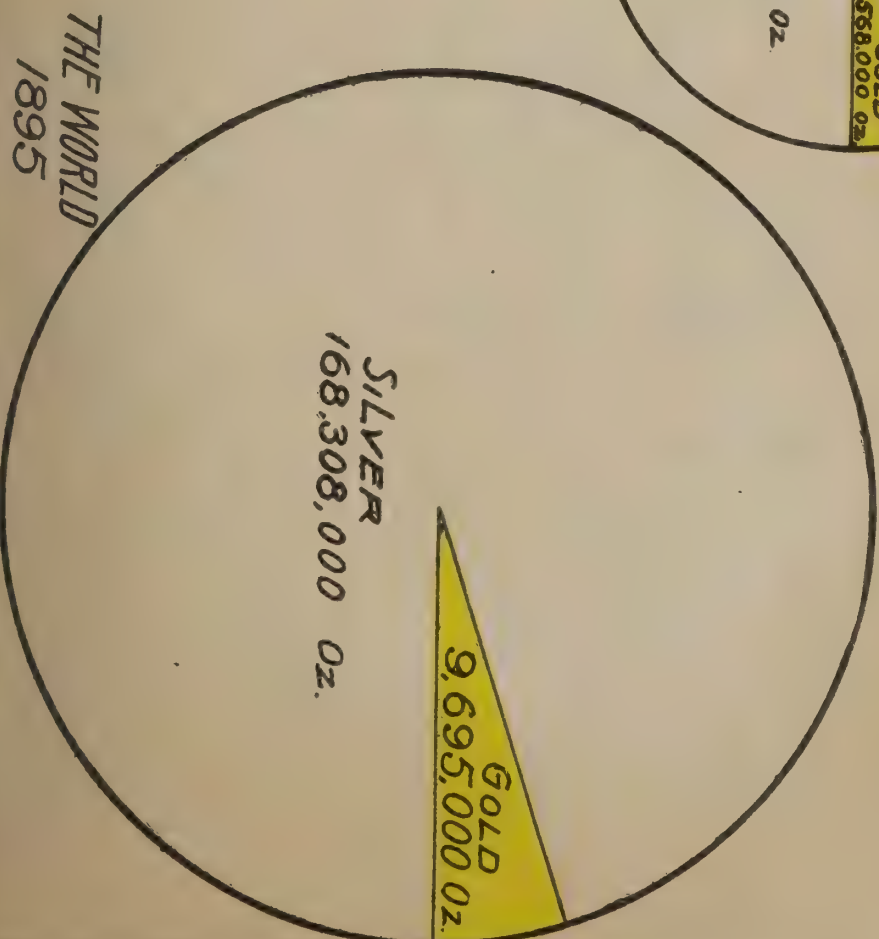
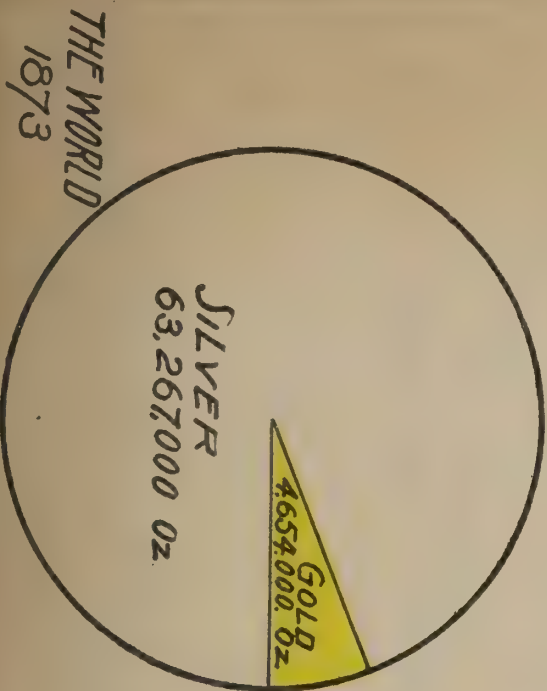
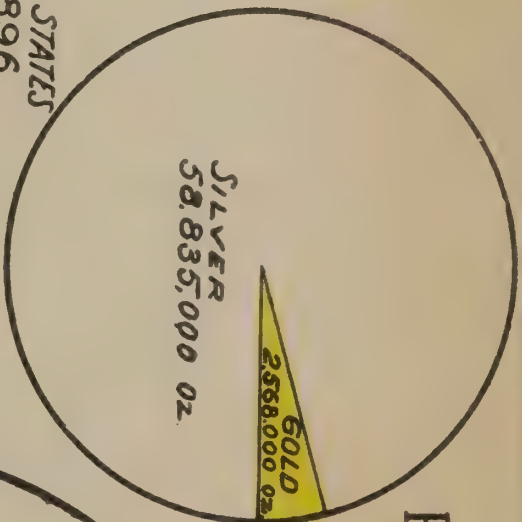
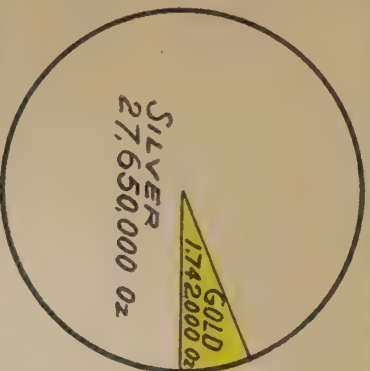
THE WORLD, 1873
(13 COMMERCIAL NATIONS)



THE WORLD 1896
(13 COMMERCIAL NATIONS)

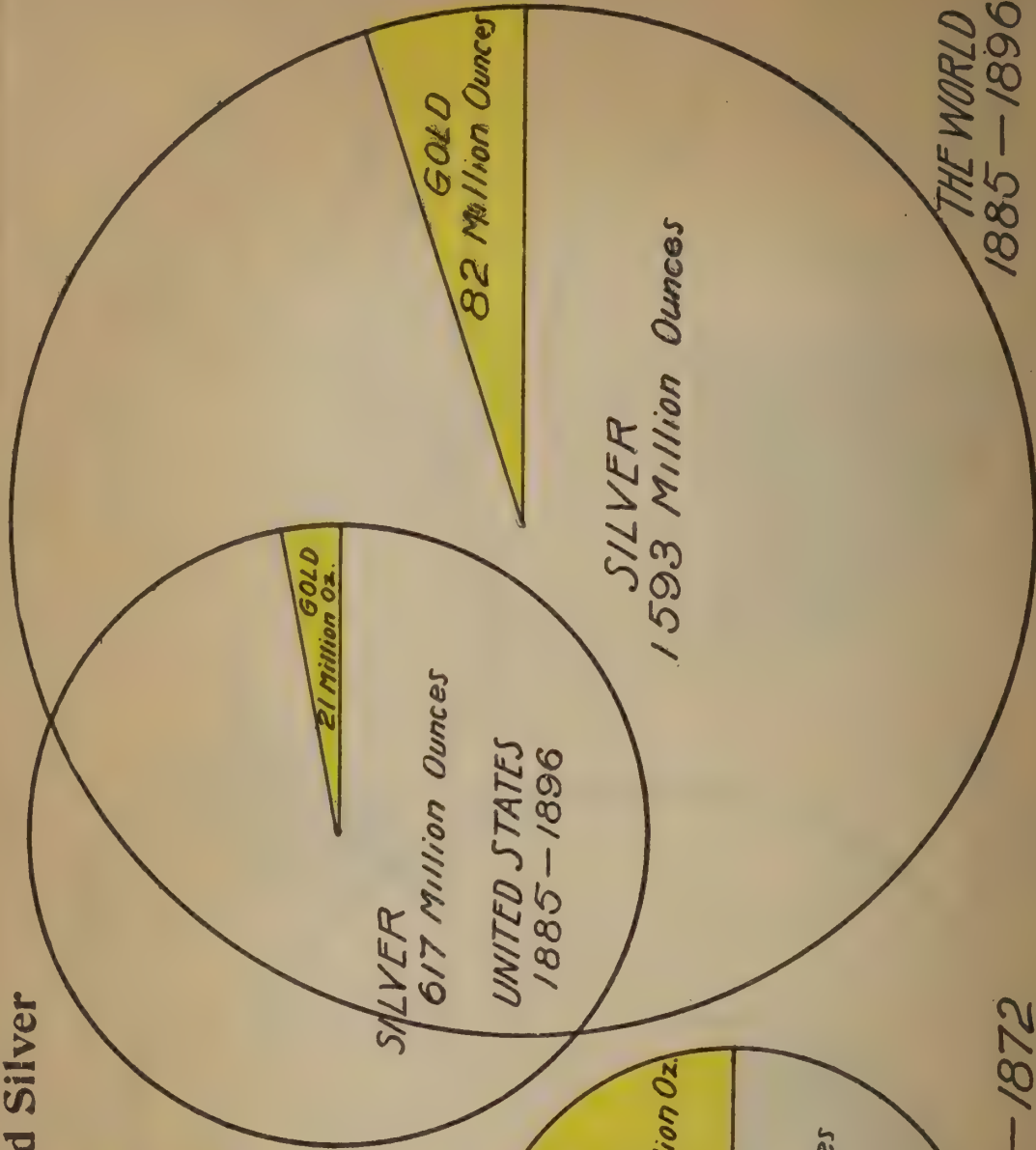
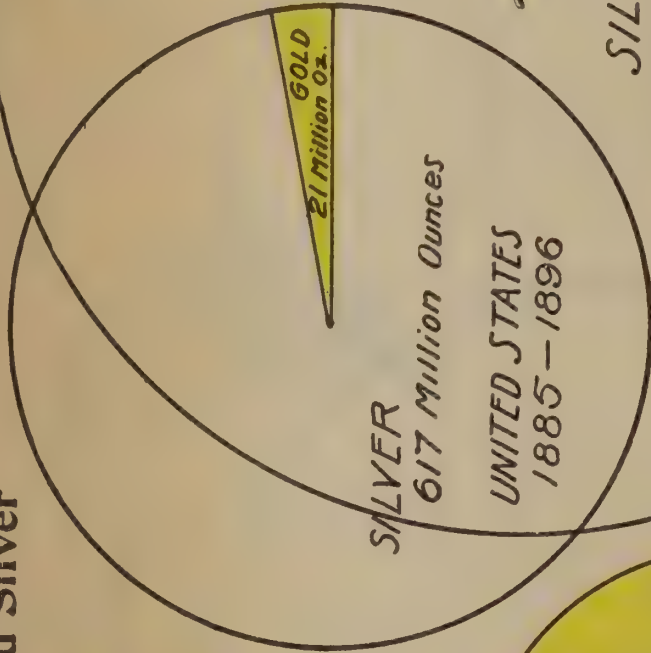
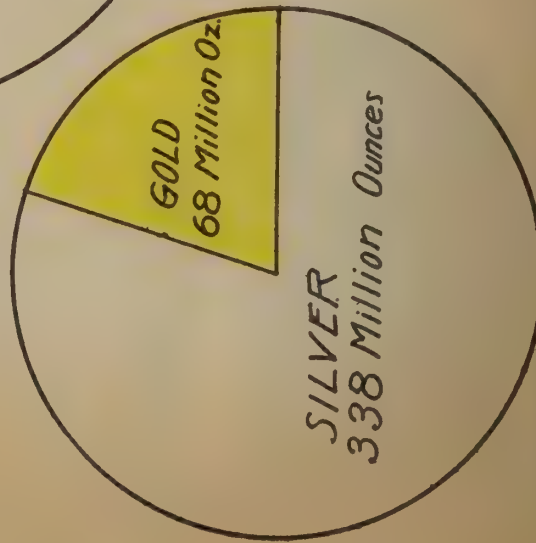
Production of Gold and Silver, 1873 and 1896

Compared to the World's Total in 1873



Production of Gold and Silver

By 12-Year Periods



Coinage of the Mints of the United States.

From their organization, 1792, to close of fiscal year ending June 30, 1896.

DENOMINATION.	PIECES.	VALUE.
GOLD.		
Double eagles,	63,884,661	\$1,277,693,220.00
Eagles,	26,653,827	266,538,270.00
Half eagles,	44,126,106	220,631,030.00
Three-dollar pieces (coinage discontinued under act of Sept. 26, 1890),	539,792	1,619,376.00
Quarter eagles,	11,478,358	28,711,015.00
Dollars (coinage discontinued under act of Sept. 26, 1890),	19,499,337	19,499,337.00
Total gold,	116,182,081	\$1,814,692,253.00
SILVER.		
Dollars (coinage discontinued, act of Feb. 12, 1873, and resumed under act of Feb. 28, 1878),	438,821,279	438,821,279.00
Trade dollars (coinage authorized Feb. 12, 1873, discontinued March 3, 1887),	35,965,924	35,965,924.00
Half dollars,	270,326,721	135,163,360.50
Quarter dollars,	204,704,690	51,176,172.50
Twenty cent pieces (coinage discontinued, act of May 2, 1878),	1,355,000	271,000.00
Dimes,	289,043,005	28,904,300.50
Half dimes (coinage discontinued, act of Feb. 12, 1873),	97,604,388	4,880,219.40
Three cent pieces (coinage discontinued, act of Feb. 12, 1873),	42,736,240	1,282,087.20
Total silver,	1,380,557,247	696,464,343.10
MINOR.		
Five cent pieces, nickel,	285,844,706	14,292,235.30
Three cent pieces, nickel (coinage discontinued, act of Sept. 26, 1890),	31,378,316	941,349.48
Two cent pieces, bronze (coinage discontinued, act of Feb. 12, 1873),	45,601,000	912,020.00
One cent pieces, copper (coinage discontinued, act of Feb. 21, 1857),	156,288,744	1,562,887.44
One cent pieces, nickel (coinage discontinued, act of April 22, 1864),	200,772,000	2,007,720.00
One cent pieces, bronze,	807,391,034	8,073,910.34
Half cent pieces, copper (coinage discontinued, act of Feb. 21, 1857),	7,985,222	39,926.11
Total minor,	1,535,261,022	27,830,048.67
Total coinage,	3,082,000,350	2,538,986,644.77
Silver dollar coinage under act of—		
April 2, 1792,		8,031,238.00
February 28, 1878,	378,166,793 }	
July 14, 1890,	47,544,776 }	430,790,041.00
March 31, 1891,	5,078,472 }	
Total,		438,821,279.00

a Includes \$2,501,052.50 in Columbian souvenir half dollars.

b Includes \$10,005.75 in Columbian souvenir quarter dollars.

SEIGNIORAGE ON SILVER COINAGE.—Including the balance on hand at the mints July, 1878, the net seigniorage or profits on the coinage of silver from that date to June 30, 1896, aggregated \$78,145,603.93. The seigniorage on the coinage of silver dollars, under the act of July 14, 1890, from August 13, 1890 (the date the act went into effect), to June 30, 1896, was \$10,580,218.62, and from July 1 to November 1, 1896, \$2,723,816.31, a total seigniorage under this act of \$13,304,034.93. Seigniorage is the difference between the cost of the silver to government and the par value of the coins made therefrom.

The profits of 928 state banks with \$56,000,000 of capital in 1895 averaged 7.2 per cent, ranging from 4.3 per cent in Rhode Island to 10 per cent in Ohio, and 13 per cent in Montana. In 1896, there were 1195 state banks with \$88,000,000 of capital, paying 6.8 per cent dividends.

Statistics of Coinage.

Amount, cost and average price paid each year and bullion value of a silver dollar coined from bullion purchased under the act of Feb. 28, 1878.

Fiscal year.	Fine oz. Mil'ns.	Cost. Mil'ns.	Average price per oz.	Bullion value of a silver dollar.
1878	10.8	\$13.0	\$1.2048	\$0.9318
1879	19.2	21.5	1.1218	.8676
1880	22.0	25.2	1.1440	.8848
1881	19.7	22.3	1.1328	.8761
1882	21.1	24.0	1.1351	.8779
1883	22.8	25.5	1.1174	.8642
1884	21.9	24.3	1.1120	.8600
1885	21.7	23.7	1.0897	.8428
1886	22.6	23.4	1.0334	.7992
1887	26.4	25.9	.9810	.7587
1888	25.3	24.2	.9547	.7384
1889	26.4	24.7	.9338	.7222
1890	27.8	26.8	.9668	.7477
1891	2.7	3.0	1.0901	.8431
Total,	291.3	308.3	1.0583	.8185

Amount, cost, average price, and bullion value of the silver dollar of silver purchased under the act of July 14, 1890.

	Fine oz.	Cost.	Average price	Bullion value
1891	48.3	\$50.5	\$1.0451	\$0.8083
1892	54.3	51.1	.9402	.7271
1893	54.0	45.5	.8430	.6520
1894	11.9	8.7	.7313	.5656
Total,	168.7	155.9	.9244	.7150

Cost of Coined Silver.

Amount, cost, average price and bullion value of the silver dollar of silver purchased under the acts of Feb. 12, 1873, Jan. 14, 1875, Feb. 28, 1878 and July 14, 1890.

ACTS AUTHORIZING.	Fine ounces. In millions.	Cost. In millions.	Average price per fine ounce	Bullion value of a silver dollar.
Feb. 12, 1873,	5	\$7	\$1.32	\$1.02
Jan. 14, 1875,	32	38	1.19	.92
Feb. 28, 1878,	291	308	1.06	.82
July 14, 1890,	169	156	.92	.72
Total,	497	509	1.02	.79

Coinage Since Repeal.

Coinage of gold and silver since November 1, 1893, the date of the repeal of the purchasing clause of the act of July 14, 1890, to June 30, 1897. Millions.

Nov. 1, 1893, to June 30, '97.	Gold.	Silver dollars	Subsidiary silver.
Nov. and Dec., 1893,	\$20.6		\$0.8
Calendar year 1894,	79.5	\$3.1	6.1
Calendar year 1895,	59.6	.8	4.8
Jan. to June 30, 1896,	22.5	7.5	1.4
July 1, '96, to Ju. 30, '97,	71.6	21.2	3.1
Total,	253.9	32.6	16.2

Production of Precious Metals by States

So far as officially reported to the United States mint from 1800 to 1897. Unrefined gold and silver of domestic production, value distributed by states and territories; also refined domestic bullion (not distributed), deposited at the mints and assay offices from their organization to the close of the fiscal year ended June 30, 1896.

In thousands of dollars, hundreds and cents omitted.

LOCALITY.	Gold.	Silver.	Total.
Alabama.....	\$252		\$252
Alaska.....	1,852	\$20	1,872
Arizona.....	8,060	14,104	22,164
California.....	772,148	4,293	776,441
Colorado.....	72,148	24,844	96,992
Georgia.....	9,395	8	9,403
Idaho.....	36,675	1,988	38,663
Maine.....	6		6
Maryland....	20		20
Massach'sts.....		1	1
Michigan.....	469	4,129	4,598
Minnesota....	6		6
Montana.....	76,401	22,129	98,530
Nebraska....	2		2
Nevada.....	35,392	104,477	139,869
N. Hampshire	12		12
New Mexico..	6,427	7,416	13,843
N. Carolina..	11,854	60	11,914
Oregon.....	22,757	104	22,861
Pennsylvania	1	3	4
S. Carolina...	2,491	5	2,496
S. Dakota....	55,762	1,108	56,870
Tennessee....	91		91
Texas.....	8	6	14
Utah.....	1,716	19,929	21,645
Vermont.....	87		87
Virginia.....	1,766		1,766
Washington..	1,155	17	1,172
Wyoming....	881	13	894
Other sources	42,129	42,986	85,115
Total unref.	1,159,963	247,640	1,407,603
Refined.....	502,751	536,359	1,039,109
Tot. bul. dep	1,662,714	783,999	2,446,712

Allowing for the production of gold since June 30, 1896, it appears from this table that California has produced nearly 800 million dollars of gold, Colorado 75 millions, Idaho 40, Montana 80, Nevada 36, South Dakota 60, Oregon 25, North Carolina 13 and Georgia 10 millions in gold. Nevada is the great silver state, having produced (roughly speaking) nearly four times as much silver as gold, but Utah and Arizona have produced far more silver than gold. The total reported in this table for the United States up to June 30, 1896, was 1,663 millions of dollars in gold and 784 millions in silver, out of United States total production of 2,033 millions of dollars gold and 1,446 million dollars of silver (coining value) from 1792 to 1896 inclusive. This apparent discrepancy is further evidence of the inability of official statistics to fully enumerate every ounce of gold and silver produced. It is manifestly an impossibility to do so.

Kinds of Silver Coinage.

Coinage of silver coins, by acts and denominations, from 1792 to June 30, 1896.
[In millions of dollars.]

DENOMINATION.	1792 to 1853.	1853 to Feb. 12, 1873.	Feb. 12, 1873, to June 30, 1896.	Total silver.
Dollars	\$2.5	\$5.5	\$430.8	\$438.8
Trade dollars			35.9	35.9
Total dollars....	2.5	5.5	466.7	474.7
Half dollars.....	66.3	32.6	33.7	132.6
“ Columbian.....			2.5	2.5
Quarter dollars...	3.9	17.8	29.2	51.1
20 cent pieces.....			.2	.2
Dimes.....	3.8	4.9	20.1	28.9
Half dimes.....	1.8	3.0		4.8
Three cent pieces,	.7	.5		1.2
Total subsidiary	76.7	59.0	85.8	221.6
Total silver	79.2	64.5	552.6	696.4

Coinage in Canada.

In the early days all sorts of coin were used in British North America.

The first step taken in Canada for a revision of currency was in 1795, when, to remedy the evils resulting from the coined money in circulation being reduced in weight, debased in value and composed of every variety of pieces peculiar to all countries trading with this continent, an Act was passed which fixed a standard of value founded upon the average intrinsic worth of the gold and silver coins of Great Britain, Portugal, Spain, France and the United States.

Subsequently various Acts of the Legislatures established a valuation for these pieces, at which they were accepted in market overt.

Finally, in 1853, the Province of Canada adopted dollars and cents, pounds, shillings and pence as the only moneys of account. In 1871 the Federal Parliament passed the Act (Chap. 4, Acts of 1871) respecting the currency, which gave to the provinces of the Dominion a uniform currency, the single gold standard adopted being that of the British sovereign of the weight and fineness prescribed by the laws of the United Kingdom, to pass current at \$4.86 2-3. Provision was also made that, until otherwise ordered by the queen's proclamation, the gold eagle of the United States, of the fixed weight of 10 pennyweights and 18 grains troy, and of a settled standard of fineness, should be legal tender in Canada. The same Act provided for a gold coinage for Canada, but special Canadian gold coinage has not been minted.

Silver coins were made legal tender to \$10, and minor coin to 25 cents.

The silver coins in use are 50, 25, 20, 10 and 5 cents.

Prices.

Comparative relative prices in the United States, England, Germany and France, for 1891, compared with 1860 as 100.

	United States.	England	Ger-many.	France.
Coffee.....	165	131	134	152
Tea.....	64	43	57	
Sugar.....	63	46	53	52
Tobacco.....	140	163	85	83
Wheat.....	88	74	82	
Meats.....	111	115	159	103
Silk.....	56	86	61	60
Flax and hemp....	92	35	68	
Wool.....	75	80	40	69
Indigo.....	79		76	
Oils.....	68	70	72	64
Timber.....	140	106		
Tallow.....	45	67	52	
Leather.....	86	94	78	139
Copper.....	60	52	57	95
Iron.....	72	99	86	15
Lead.....	73	61	107	43
Tin.....	62		63	175
Cotton.....	85	82	95	53
Cotton yarn.....	66	78	96	46
Cotton cloth.....	66	71	75	66
Cotton.....	80	68	95	53
Average.....	83	81	80	79

a Zinc. The above shows that prices declined as much, or more, abroad as at home. Even France, with its large per capita stock of money and with more gold and silver than any other commercial nation, showed a slightly greater decline in prices than was the case in the United States. In England the total average for all these articles was, in 1873, exactly the same as in Germany.

Relative prices in Hamburg, Germany, by groups of articles.

(1860=100.)

	1865	1873	1885	1891
Product of agriculture, 20,	95	109	83	90
Animals and fish, 22.....	101	117	105	98
South, 7.....	95	110	103	116
Tropics, 19.....	97	112	97	94
Minerals and metals, 14..	91	129	68	78
Textile materials, 7.....	108	110	88	74
Miscellaneous, 10.....	104	102	70	73
British export, 14.....	131	122	95	90
Total, 114	101	114	90	90

The average prices in 1860 being 100, in 1851 they were 83. The advance from '65 to '70 was slight in most cases, averaging 102. High water mark was reached in '73, the general average declining to 101 in '80. Further and general declines in prices occurred between '91-'96, but '96-'97 has witnessed some improvement.

Transportation and Communication.

THE PROBLEM OF GOOD ROADS.

This story of the "Good Roads Movement," so called, is mainly an account of what has been done by about a score of the states. National aid has not been sought, although in the earlier history of the country the splendid Cumberland road across the Allegheny mountains to the Mississippi was a government enterprise, and at the time of its constitution twelve other important national roads were begun but were given up at the approach of the monetary crisis of 1836.

THE PIONEER STATES.

In the line of state road building, two or three states have been the pioneers. The various methods in practice consist of: First, direct state road building, as in Massachusetts and some of the western mountain states; second, state aid, as in New Jersey; third, county road building; fourth, county aid to local contribution; fifth, convict labor; sixth, direct taxation; seventh, assessment of benefit strips; eighth, township bonding, as in Pennsylvania.

In Massachusetts, the state roads are built through a permanent highway commission. This commission makes selections from a large number of petitions from the towns and cities, and builds only such roads as they consider expedient. The commission has full control of the building and maintenance of the road, but a contract for its construction is usually made with the town directly interested, by which plan the town officials secure training and experience. The state pays the bills, but collects 25 per cent of the cost from the counties. A resident engineer is appointed by the commission. Appropriations have been made each year since 1894, ranging in amount from \$300,000 in 1894 to \$800,000 in 1897, and numerous sections of macadam road have been laid in all the counties. The aim has been to put the roads where they would do the most good. Some regard is paid to the connection of the new roads with other important highways and it is also the policy of the commission to give rather more roads to those counties that appropriate the largest sums for independent road building. In traveling through the state, these sections of state road, extending a mile or two along the worst part of the way, afford a welcome relief. The tendency of the state roads seems to be to enhance the value of the farms along the route. It has been proposed to plant these state highways with shade trees, including fruit and nut trees, but by reason of the cost and other objections, no trees have been planted.

NEW JERSEY'S EXPERIENCE.

New Jersey is another of the pioneer road building states. Here the state pays only one-third the cost of construction, while the adjoining property holders pay ten per cent and the county pays the remainder and assumes the maintenance of the road.

A person desiring to have a road improved must first determine that the road is not less than one mile in length, and that it does not approach a county or municipal line so as to prevent the continuance of the road to their limit by leaving a distance (less than one mile) too short to be constructed under the law. This is necessary in order that an adjoining county can connect with it and thus continue the system.

There is nothing new under the sun.

Having looked after these points, he must next ascertain the exact length of the road wanted to be improved and the number of property owners whose land fronts or borders on the road. Having obtained this information, he then prepares a petition in the usual form, setting forth that the signers are owners of property fronting or bordering on said public road and that they are willing to be assessed for the peculiar benefits to be derived under the law "for the more permanent improvement of the public roads," etc., to an amount not exceeding 10 per cent of the total cost of the improvement asked for, stating also the kind of road-bed wanted and width of the same. This petition is offered to every property holder on the line of the road and his signature requested, and after so doing, if more than two-thirds of the linear feet fronting on the road has been signed for, the petition is presented to the board of chosen freeholders of the county, who must cause all necessary surveys to be made and specifications prepared. After these have been adopted by the board, they must be presented to the State Commissioner of Public Roads for his approval. After the State officer has signed the specifications, they are returned to the board of freeholders, who must forthwith advertise for proposals to build the road. When the contracts are let, a copy of the contract must be filed with the State Commissioner, who shall, on recommendation of the property owners who have signed the petition for the road, appoint a supervisor of construction, who is to be paid \$3 per day, and who must give his whole time to the work and see that the conditions of the specifications and contract are carried out under the direction of the engineer.

Such are the principal details of the road building section of the law. Under this law the feasibility and practicability of State aid to road improvement has been thoroughly demonstrated by the building of about 40 miles of road, already completed; 36 miles are under construction and specifications on file for at least 50 miles additional, with a constant inquiry tending to increase and extend the mileage.

The improved roads are very popular among the New Jersey farmers and have in some sections largely increased the value of real estate.

PAYING FOR THE ROADS.

In Ohio, Indiana and other western states, the cost of the new roads is partly assessed upon a strip of one, two or three miles wide on each side, and the remainder is paid by the county.

State aid is naturally more popular than direct taxation by counties. There are a few places where the direct tax method is being employed, and a considerable number where counties are issuing bonds, notably, in the first case, the town of Canandaigua, in the state of New York; and, in the second case, the county of Morris, in the state of New Jersey. Morris county has lately borrowed \$350,000 at less than 4 per cent interest, and the townships of the county will tax themselves for half as much more for a complete system of county roads. In Canandaigua the property owners have paid an extra tax of \$4000 annually for several years, and are so well pleased with the result that they are likely to continue the tax until all their roads are macadamized.

In the state of Kentucky very excellent roads have been built under special laws permitting counties to contribute \$1000 per mile to the construction of stone roads of specified details, and the state has now a larger mileage of good roads in proportion to the population than any other in the United States.

USE OF CONVICT LABOR.

In some of the southern states the use of convict labor on the highways has become quite popular, but the plan is open to various objections, of which the most serious from a financial point of view is the cost of guarding the convict while at work. The most recent tendency seems to point toward employment of the convicts chiefly in preparing material at quarries and at crusher mills.

When these figures are applied to the two hundred millions or more tons of the nation's annual farm produce, the importance of the item of cost of road traffic becomes evident.

A friend's frown is better than a knave's smile.

Cost of Road Traffic.

With the aid of the Division of Statistics, reports have been gathered from about 1,200 counties, giving the average length of haul in miles from farms to market or shipping points, the average weight of load hauled, and the average cost per ton per mile, and from this is deduced the average cost per ton for the whole length of haul.

	A'v. length of haul. Miles.	A'v. weight of 2-horse load, lbs.	A'v. cost to haul 1 ton 1 mile.	Cost per ton for haul.
Eastern states.....	5.9	2,216	\$0.32	\$1.89
Northern.....	6.9	2,136	0.27	1.86
Middle Southern.....	8.8	1,869	0.31	2.72
Cotton.....	12.6	1,397	0.25	3.05
Prairie.....	8.18	2,400	0.22	1.94
Pacific Coast and Mountain states...	23.3	2,197	0.22	5.12
United States.....	12.1	2,002	0.25	3.02

Effect of Steep Grades.

Showing the effect of grades upon draft, on roads of various methods of construction. All of the roads are supposed to be in first-class condition.

	Force required to draw a gross load of 2240 lbs on a level.	Steepness of grade (rise per 100 ft) on which the vehicle will not run back	Draft on a Level Compared with that on Different Grades.					
			Rise in Feet Per 100 Feet.					
			Level.	3 ft.	6 ft.	9 ft.	12 ft.	15 ft.
	<i>Pounds.</i>	<i>Feet.</i>						
Earth road.....	200	8.9	200	260	340	400	460	450
Gravel road....	143½	6.4	143½	215	273	344	416	474
Macadam road.	65	2.9	65	130	202	267	332	397
Telford road....	46	2.0	46	115	179	248	313	377

Progress of the movement for better roads is well indicated by a summary of the laws which have been passed since 1888 in twenty-five of the states, and published by the Office of Road Inquiry of the U S department of agriculture, which office has also published for general distribution much interesting and useful information upon this subject.

List of Good Roads Organizations.

NATIONAL LEAGUE FOR GOOD ROADS.

Vice president, General Roy Stone, Washington, D. C.; general eastern secretary, E. G. Harrison, Asbury Park, N. J.; general western secretary, S. Thornton K. Prime, Dwight, Illinois; treasurer, William H. Rhawn, Philadelphia, Pa.

Executive committees: E. H. Thayer, Clinton, Ia.; Clem. Studebaker, South Bend, Ind.; W. Seward Webb, New York, N. Y.; Charles L. Burdette, Hartford, Ct.; Chas. Peabody Wetmore, U. S. Senate; August Belmont, New York City; Augustus T. Gillender, New York City.

Central committee, national road conference: General Stone, Washington, D. C.; Judge Thayer, Clinton, Ia.

ADVISORY COMMITTEE OF NATIONAL LEAGUE.

Major W. W. Screws, Montgomery, Ala.; Hon. John C. Brady, Sitka, Alaska; Hon. L. C. Hughes, Tucson, Ariz.; G. W. Sappington, Little Rock, Ark.; J. A. Woodson, Sacramento, Cal.; Louis B. Carpenter, Fort Collins, Col.; Col. Chas. L. Burdette, Hartford, Conn.; William Cooch, Newark, Del.; Gen. Roy Stone, Washington, D. C.; Mr. J. W. White, Jacksonville, Fla.; Col. George W. Harrison, 65 Ivy street, Atlanta, Ga.; James Mullany, Glen's Ferry, Idaho; W. C. Garrard, Springfield, Ill.; Hon. Mason J. Niblack, Vincennes, Ind.; Hon. E. H. Thayer, Clinton, Iowa; Major M. H.

Crump, Bowling Green, Ky.; Guy Samuels, Baton Rouge, La.; Frederick J. Ilsley, Portland, Me.; D. C. Wharton Smith, Darlington, Md.; George A. Perkins, 15 Court Square, Boston, Mass.; Hon. W. L. Webber, Saginaw, E. S.; Mich.; A. B. Choate, Minneapolis, Minn.; Captain James H. Duke, Scooba, Miss.; John R. Rippey, Columbia, Mo.; F. H. Ray, Helena, Mont.; Curtis C. Turner, Omaha, Neb.; Gen. John E. Jones, Carson City, Nev.; Hon. David H. Goodell, Antrim, N. H.; E. G. Harrison, Asbury Park, N. J.; John A. C. Wright, 28 Elwood Building, Rochester, N. Y.; Col. John C. Tipton, Shelby, N. C.; Hon. Martin Dodge, Cleveland, Ohio.; William H. Rhawn, 313 Chestnut street, Philadelphia, Pa.; C. H. Handy, Warren, E. I.; Hon. W. D. Evans, Bennettsville, S. C.; O. S. Bassford, Redfield, S. Dak.; Major C. A. Locke, Nashville, Tenn.; J. S. Daugherty, Kiam Building, Houston, Texas; Hon. Thomas Whitehead, Richmond, Va.; J. Hannum Jones, Nooksack, Wash.; A. Cressy Morrison, 505 East Water street, Milwaukee, Wis.

OTHER HIGHWAY ORGANIZATIONS.

Wisconsin league for good roads, 505 East Water street, Milwaukee, Wis.; Thomas M. Blackstone, president, Sheboygan; Otto Dörner, secretary, 505 East Water street, Milwaukee. Vermont board of highway commissioners, Burlington: Oscar D. Hinds, chairman, East

List of Good Roads Organizations.—Continued.

Highgate; J. W. Votey, secretary, Burlington; Marcus Peck, Brookfield.

Ohio road commission, Cleveland: Hon. Martin Dodge, chairman, Cleveland.

Connecticut highway commission, Rooms 25 and 27, Capitol, Hartford: James H. McDonald, chairman, Hartford; A. C. Sternberg, Hartford; William R. McDonald, Hartford.

New Jersey road improvement association: Clayton Conrow, president, Cinnaminson; C. C. McBride, vice president, Elizabeth; E. G. Harrison, secretary and treasurer, Asbury Park.

Iowa road improvement association, Clinton: E. H. Thayer, president; O. L. Brown, secretary, Des Moines; C. B. Worthington, treasurer, Des Moines.

Virginia state good roads association: Joseph Bryan, president, Richmond; Chas. E. Ashburner, Jr., first vice president, Brook Hill; H. W. Anderson, secretary and treasurer, Times Building, Richmond.

California bureau of highways, Sacramento. Commissioners: R. C. Irvine, Sacramento; Marsden Manson, Sacramento; J. Lee Maude, Sacramento; clerk, E. Marion Wolf, Sacramento.

Massachusetts highway commission, 15 Court square, Boston. Commissioners: George A. Perkins, president, Boston; Nathaniel S. Shaler, Boston; William E. McClintock, Boston; Charles Mills, civil engineer, Boston.

New York State league for good roads. Officers: President, Gen. Benj. F. Tracy, Rochester; vice president, W. Austin Wadsworth, care John A. C. Wright, Rochester. Special legislative committee: Chairman, Richard Higbie, Babylon, L. I.

Tennessee special committee on good roads, Nashville: Chairman, Major C. A. Locke, Nashville; Hunter McDonald, Nashville; W. H. Schuerman, Nashville.

Indiana highway improvement association. Indianapolis: President, J. S. Mount, Shandonale; secretary, L. B. Eubanks, Indianapolis.

Missouri road improvement association, Kidder: President, T. O. Stanley, Sedalia; vice president, W. C. Adams, Atherton; secretary and treasurer, Levi B. Chubbuck, Kidder.

Connecticut local road improvement association, Cromwell: President, Dr. W. B. Hallock, Cromwell; secretary, T. W. Beaumont, Cromwell.

Maryland road league, Darlington: President, D. C. Wharton Smith, Darlington; secretary, C. Wilson, Darlington.

Nebraska—Douglas County road improvement association, Omaha: President, Hon. Chas. F. Manderson, Omaha; secretary, Curtis C. Turner; Victor B. Caldwell.

Michigan league for good roads: President, W. L. Webber, Saginaw; vice president, William Appleton, Lansing; secretary and treasurer, E. M. Hopkins, Saginaw.

Pennsylvania—Mifflin County good roads association, Milroy: President, Charles Bratton, Shanks River; vice president, J. H. Peachy, Belleville; secretary, S. T. Moore, Milroy.

Florida—Lake County roads association: W. M. Bennett, president, Okahumpka; C. S. Noble, secretary, Montclair; E. D. Putney, assistant secretary, Mt. Dora; W. O. McClelland, treasurer, Eustice.

California—Alameda County good roads association, Oakland: President, E. B. Jerome; vice president, Seth Mann; secretary, J. D. Galloway.

California—Sacramento County good roads association: President, M. S. Lavenson; vice president, Daniel Flint; secretary, F. J. Dwyer.

Pennsylvania Wheelmen's road association, Bristol: President, George A. Shoemaker, Bristol; secretary, Thomas E. Longstreet.

Kansas good roads society, Wamego: President, W. W. Short; secretary, D. A. Rogers.

Florida good roads association, Jacksonville: President, Montcalm Broward; secretary, Charles S. Smith.

Florida—Marion County good roads association, Ocala: Charles W. Towey, president, Ocala; Charles T. Trask, secretary, Belleview.

Pennsylvania Logan Wheelmen association, Altoona: G. M. Ellsworth, secretary, Altoona.

Pennsylvania—Lackawanna County good roads association, Scranton: President, A. B. Dunning, Scranton; treasurer and secretary, D. B. Atherton, Scranton.

Rhode Island highway commission: Commissioner and chief engineer, Charles F. Chase, Providence; assistant engineers, C. A. Matteson, W. G. Wheelock, John B. Carr, Providence.

Connecticut valley highway association: President, William L. Dickinson, Springfield, Mass; secretary, Charles M. Slocum, Springfield, Mass.

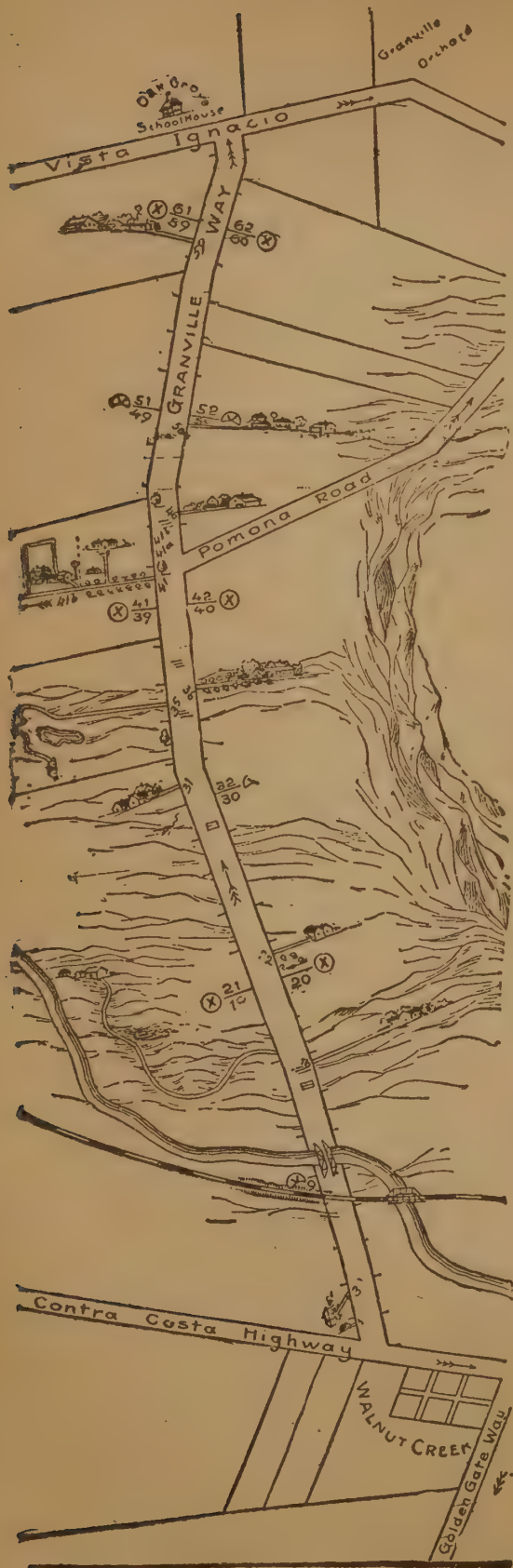
New Jersey city improvement society, New Brunswick: President, Mrs. N. Williamson, New Brunswick; secretary, Mrs. O. P. Schneeweiss, New Brunswick.

Ten Block System of Numbering Country Houses.

By this system the roads of an entire county are arranged in as long lengths as practicable and are all named. They are then measured, commencing at the county seat or at the end nearest to it, and each mile is divided into ten equal parts or imaginary blocks having frontage only. Two numbers are assigned to each block, one to each frontage, the odd ones on the left and the even ones on the right—ten blocks to a mile; 20 numbers to a mile. Any house having an entrance in a block has the number of that block. The number for all but the first house is followed by a distinguishing letter; 742, 742a, 742b, etc. Divide the even numbers by two and point off one decimal and the distance in miles and tenths, from the commencement of the road, is shown. The scheme was developed by A. L. Baneroft of San Francisco while working up a system for Contra Costa county. The plan was adopted by the county authorities and the work of establishing it is under way.

The better the day, the better the deed.

Map of Granville Way, with Explanation.



No. 81 in official road list. Begins at 211 Contra Costa Highway, at the town of Walnut Creek. Course at outset N. 20° E. General direction N. 35° E. Elevation at beginning 96 feet. Ends at 92 Vista Ignacio. Numbers in road 66. Course at finish N. 35° E. Elevation at end 154 feet.

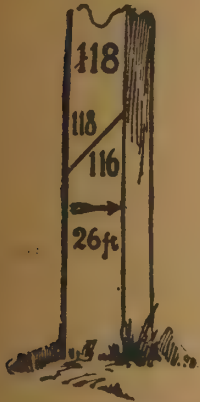
Character and condition of the road: Partly improved; some of it raised in the middle and less of it graveled; a fair summer road; places almost impassable during a very severe winter.

Exact point of commencement, 429 feet in 211 Contra Costa Highway (i. e., 429 feet in or within No. 211, the distance from the beginning of the block).

1. E. Dunn.
3. J. A. McMillan.
Summit of small hill and crossing of San Ramon branch of the S. P. R. R., 484 feet in No. 8.
Granville bridge over Walnut creek, 154 feet in No. 12.
Culvert, 227 feet in No. 16.
Small bridge, 306 feet in No. 16.
16. Mrs. Wm. Rice, about 4 miles distant.
Mrs. X. R. Hill.
17. San Miguel Stock Farm, about 7 miles distant, owned by Irvin Ayres.
Summit of hill. Fine view back beyond the town of Walnut Creek; 400 feet in No. 20.
Spring and willow trees, about 20 feet back from road; 430 feet in No. 22.
22. Mannel Welch.
Summit of Spring Ridge. Elevation 250 feet; 160 feet in No. 26.
Fine view of Ignacio valley and Mt. Diablo, 28 | 26.
Sulphur spring, about 75 feet back from road; 30 feet in No. 29.
Culvert; 140 feet in No. 30.
31. A. G. Gurnett.
Eucalyptus 2 feet in diameter at edge of roadway; 394 feet in No. 33.
Small bridge; 100 feet in No. 36.
35. Antonio Ginocchio; about 7 m. distant.
36. E. Randall. Samuel Randall.
Small bridge; 300 feet in No. 36.
41. H. H. Bancroft.
- 41a. Aloha Farm, 4 miles distant. Aloha Farm Nursery. A. L. Bancroft. Geo. Reed, Supt. Aloha Farm. Crofton and Granville Orchard. Bert H. Bancroft, Wm. Carey, W. P. Thomas.
- 41b. Crofton, 1.4 m. distant. A. L. Bancroft.
White oak 2.5 feet in diameter in roadway; 400 feet in No. 41.
Pomona Road. Course at outset E. 20° S. Elevation 160 feet; 516 in No. 42.
Small bridge, 44 | 42.
White oak 3 feet in diameter in roadway; 337 feet in No. 43.
46. F. G. Tuttle.
50. Lot Moore.
Interior of Ignacio valley. Fine view of Mt. Diablo and surrounding country, 52 | 50.
59. H. P. Penniman.
End of Granville Way; 367 feet in No. 66.

LISTING THE ROADS.—Before farmhouses can be numbered the roads must be listed and named. Arrange in as long lengths as possible and so long as it continues in the same general direction the same name should be continued through town, across streams, over ridges and around mountains, along its entire length. The roads should all begin at the county seat or at the end nearest it. The roads should be listed, commencing with those departing from the county seat northerly, and work around east, south, west and back again to the north. The roads branching from these and their branches follow.

SELECTING THE NAMES.—In naming the roads, the things to be avoided are perhaps more important than the things to be done. The name of neither terminus is taken for the reason that it would be appropriate only when traveling toward it. The name of no living resident should be used, for while it might be pleasing to the one whose name was so selected, it would scarcely be so to anyone else. Avoid the possessive case. Select names from the surrounding landscape, botanical or geological features, historical associations or legends. Names of naval officers, battle fields, forest trees, etc, are very appropriate. The name should be short, easily spelled and pronounced. Two-word names are better than three or more. There seems to be a necessity for having certain kinds of roads distinguishable at once by their names. Consequently in Contra Costa county three words, local, connex and exit, have been used to definitely indicate three different classes of roads. A local is a road having no outlet, a neighborhood road. A connex is a short road having no branches and useful principally in connecting other more prominent roads. An exit has no outlet except an exit by water. By the use of these three names confusion, which would otherwise result, is avoided. They are especially important where the country is broken and the roads irregular.



Block Division
of a Tele-
graph Pole.

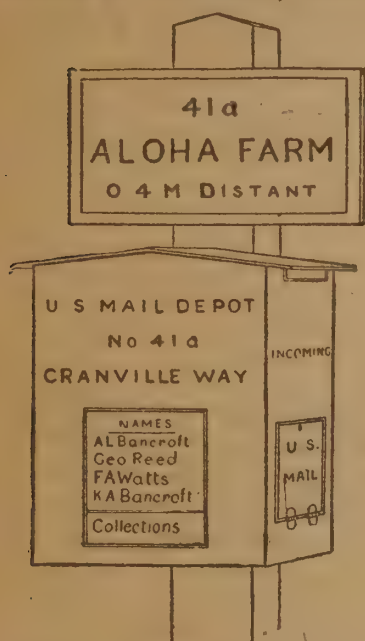
MEASURING AND BLOCKING THE ROADS.—Where shall the country road begin? Where is the dividing line between town and country? The difficulty is overcome in this way: By breaking through the frontier and going to some fixed central point and measuring from that, letting the town numbers govern within the town limits and the country numbers commence when the limits of the town are reached, the first and all other country numbers depending upon the distance from the starting point. Still keeping in mind that this is a county scheme, the county courthouse, the center of county affairs, is the proper central point for the measurement to begin. Therefore, for all roads touching the county seat the exact point where the measurement commences is the middle of the street directly in front of the main entrance to the courthouse. From this point proceed by the nearest and most direct route to and out the road to be measured. For all roads not touching the county seat the measurement commences where the middle line of the road intersects the middle line of the road from which it departs. All roads, except locals and exits, end at the connecting road where the middle line of each forms the junction.

With this system established the town may grow into a city and take up miles of the country roads, and the remaining numbers along

He laughs well who laughs last.

them will still be as applicable as they are at the commencement. Continuing the road name and road measurement directly through the country towns, letting the town numbers govern within the town limits, and it completely overcomes this difficulty at these points. The measurement is continued uninterruptedly along the entire length of the road.

NUMBERING THE COUNTRY HOUSES AND FARM ENTRANCES.—All houses or farms having entrances upon a block bear the number of that block. Where there are more entrances than one upon the same block, which will not frequently occur, all but the first are given in connection with the number a distinguishing letter—982, 982a, 982b, etc. By this system, should there be an entrance every twenty feet on both sides of the road, over 500 to the mile, a number with a letter would



U. S. Mail Depot, which has been suggested to the postmaster-general for wayside use in an experiment in country mail free distribution in central Contra Costa, where the ten block system is established. It is divided into two compartments by a vertical partition, in one of which the incoming mail is deposited by the distributing postman, and taken out by the people. In the other, the out-going mail is deposited by the people and is collected by the postman on his collecting and distributing trips. Each depot bears the number of the block and the name of the road on which located, and on the front, under glass, the names of those whose mail is deposited in that particular depot. Mail should be addressed to the post office, and also to the mail depot (M. D.) by number and name of road. With these boxes and the system of numbering country houses, rural mail delivery will be entirely practicable. While the government's experiments so far have been satisfactory, much time is lost by the postman being compelled to deliver mail at houses off the road, sometimes a quarter of a mile. This box obviates this necessity and saves much time. Each patron has a key and turns are taken in getting mail from the box, the one taking it out distributing it among the others.

still be available for each one. On the other hand, if no house occurred for miles, or if at any time afterwards houses should be erected along the roads, a number would always be ready for them. Thus it will be seen the work is permanent, that new houses being built at any time upon a road will not interfere with the houses already numbered, and there is always a number ready for the new one. The only confusion that could possibly exist would be where the early houses in a block were located near the end of the block and lettered accordingly, and the later buildings be located nearer the commencement of the block. The distinguishing letters would not then come in their regular order; and it is not absolutely necessary that they should so come, but if revision of these letters should be considered advisable, it would be but for one block and it would not in any way interfere with any of the others. The numbers would in no case require changing.

GUIDEBOARDS, ROAD MARKS AND HOUSE NUMBERS.—As will be seen by a glance at the illustration of the guideboard, while it contains all the information usually found on such aids to the stranger groping his way through the wilderness, it also contains some others. The first and most prominent line contains the name of the road in

letters sufficiently large to be easily read some distance away. The number upon the left of the same line is not the number of the road in the list of roads, but of the block within which the particular guide-board is located. It will thus always be a landmark which will enable the stranger to establish his location. The information contained in the third and following lines is that which is ordinarily found upon country guideboards; the distances, mostly being to places not upon the same road as the one upon which the guide-board is located, are given in miles, and as the whole system



A GOOD GUIDEBOARD.

is a decimal one the fractions are in tenths.

The guideboards themselves are made of galvanized iron sufficiently thick to withstand a charge of shot from the new gun of the small boy or young hoodlum. The boards are bent at right angles so as to be flat against two faces of the post and the edges at the top and bottom are turned back from the face of the board to give it rigidity. The ground of the board should be painted with luminous paint, which would enable the wording to be read at night. The posts should be of good dense 6x6 redwood, ten feet long; the part going into the ground coated with coal tar, and the part above the ground painted with two good coats of paint. Along the roads, upon the fence or other object, when suitable and well enough preserved to warrant it, are fastened strips or sheets of galvanized boiler iron, with marks to show the exact point of division between the blocks, with the block numbers upon either side of the marks. Three colors are uniformly used—one to indicate the mile points, a different one the half-mile points and a third the block divisions at either of these points. At the end of the full mile the full circle enclosing a letter X; X, ten—ten blocks—is used. At the end of the half-mile a half circle is used; it encloses half of the X, making a V, which indicates half of the ten, or five—five blocks. Thus the story is told in several different ways, and if it is told truthfully all should agree.

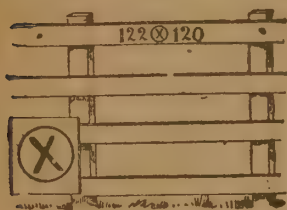
Along some roads very few objects will be found upon which it would be suitable to attach the iron plates containing the block numbers. Upon such roads trees and telegraph poles can be utilized whether they are located exactly upon the line between two blocks or not. The number of the block in which the object is located can be given in full-size figures, and underneath smaller figures can be used to show the distance and direction to the dividing line. Of course, by going to the expense of planting posts or stone shafts especially for the purpose of supporting the numbers, they could be placed in their exact positions. The distances being so readily and easily calculated from the block numbers, these marks answer every purpose of mile stones. Houses or en-



Half-Mile Mark on a Picket Fence.

Don't spoil a ship for a ha'porth of tar.

trance numbers are required to be not less than three nor more than four inches in height and they are recommended to be of the same material as other road marks—galvanized boiler iron. It goes without saying that they should be neat and durable.



Mile Mark on a Board Fence.

ADVANTAGES OF THE SYSTEM.—The intercourse between the town and country, as well as between the country people themselves, will be easier and more frequent.

Strangers can be directed and receive directions so that they can find the desired location without loss of time or asking a question.

The description of country property for the purposes of both selling and leasing will be facilitated.

The producer of country commodities can the more readily advertise his products and find a purchaser, and the seller should be benefited thereby, while the would-be purchaser could the more easily find what he desires.

A directory of country localities can be made which will be as full and definite as those at present published for city use, or addresses can be given in the poll list of voters which would be useful to some extent.

It will facilitate the official business between the county seat and the country. Road work can be more readily and accurately described.

With the ten-block system in use, it becomes feasible to establish mail delivery routes along the routes where they will accommodate the greatest number of people. Wayside mail boxes should be located along these roads and be known by the name of road and number of block in which located, such as Mail Box 14, Ogontz Road, for instance. In these boxes could be deposited the mail not only for the people living directly upon the roads, but also for those living within accessible distance upon either side. The boxes should have two compartments, one for the incoming mail and also one for the outgoing mail, both of which could be visited by the country postman as he passes along the roads sounding his bugle, thus giving notice to all within hearing that the postman was passing.

Country physicians can readily find the houses of their patients and will have data from which to make charges for their visits.

With the aid of a key map and key, taking up no more room in the pocket than a railway timetable, the distance from any house number to any other house number in a county, no matter where located, can be calculated in about one minute.

THE PRESENT SITUATION IN CONTRA COSTA.—A committee of citizens worked a year upon developing and shaping the system and preparing an ordinance. It was upon the basis that the expense should be paid out of the public treasury. It did not pass. Six months later it was presented again upon the basis that the measuring and blocking-off of the roads be done at private expense, and when or as so done, the country would, at public expense, erect and maintain suitable guideboards. With this modification the ordinance was passed and the roads are now all named. Enough money has been pledged to establish the system over a few hundred miles of roads in the central part of the county, and work upon it has already been commenced. The system has not progressed much of late, one reason being the apparent impos-

Be slow in choosing, slower in changing.

sibility of getting a suitable guideboard, and another the opposition of prominent members of the county board of supervisors. Like all other enterprises of a like nature, a few good determined men are needed to take charge of the system and stand by it until in operation. The matter should then be left in the hands of a perpetual committee of citizens who will see that all new roads are properly fitted into the system. Efforts have been made to establish the ten-block system in other counties, but they failed to materialize. The estimated cost of such a system is given as 66 cents on each \$1000 of taxes levied. The expense would include the measurement of distances by surveyors and the erection of posts.

AMERICAN RAILWAYS.

The first line of American steam railway was opened in 1827 and was four miles in length. The present mileage, seventy years later, is over 180,000 miles. Considerably more than one-half this amount has been constructed within the past twenty years. The period of most rapid construction was during the years 1887 and 1888, the mileage increasing from 134,000 miles in 1886 to 154,000 miles in 1888. Railway building, excepting the street lines, has come nearly to a standstill in many of the older sections and the chief increase of mileage is in the west and south.

For each mile of railway built, 1600 acres of land have been brought into cultivation, representing a value nearly equal to the cost of the railroads.

The traffic of the railways in proportion to inhabitants is six times greater in the United States than in Great Britain and eight times more than in France.

Like other industries, the railroads of the United States suffered severely during the hard times. During 1894, the total force of employes was lessened by 93,994, a decrease of over ten per cent. During the same year the freight traffic was less than for the preceding years, while the passenger traffic declined considerably during 1895. The surplus earnings steadily decreased during '93, '94 and '95, and in 1894 the operations showed a deficit of \$45,851,294, besides a terrible shrinkage in total assets. In 1895 affairs began to mend, and in 1896 the improvement continued, as the following statement shows:

	1896.	1895.	Increase or Decrease.	Rate of In- crease or Decrease.
Miles of railroad operated.....	180,891.19	179,153.62	1,737.57	0.97%
Tons freight moved.....	773,868,716	755,799,883	18,068,833	2.40
Freight mileage.....	93,885,853,634	88,567,770,801	5,318,082,833	6.00
Passengers carried.....	535,120,756	529,756,259	5,364,497	1.01
Passenger mileage.....	13,054,840,243	12,609,082,551	445,757,692	3.54
Earnings from freight.....	\$770,424,013	\$743,784,451	\$26,639,562	3.58
Earnings from passengers.....	265,313,258	260,929,741	4,383,517	1.68
Miscellaneous earnings.....	89,894,754	87,681,245	2,213,509	2.52
Total gross earnings.....	\$1,125,632,025	\$1,092,395,437	\$33,236,588	3.04
Net earnings.....	332,333,756	323,196,454	9,137,302	3.23
Earnings per ton per mile.....	0.821	0.839	*0.018	2.15

* Decrease.

The increase for 1896 in gross and net earnings would have been much larger but for the decrease in rates. The average charge per passenger per mile has fallen from 2.35 cents in 1894 to 2.03 cents in 1896

A man is known by his friends.

and the freight rate from 1.12c per ton per mile in '94 to 0.82c per ton per mile in 1896. Preliminary returns from leading railways indicate that 1897 has been a year of much larger traffic and greater returns than for 1896.

Owing to the lowering of rates, the rate of dividend paid on railway stock is steadily decreasing in the country as a whole. In 1884 the average rate of dividend was 2.48 per cent; in 1887, 2.18 per cent; in 1893, 1.86 per cent; in 1894, 1.64 per cent; in 1895, 1.59 per cent; in 1896, 1.54 per cent. The rate of shareholders' profit varies from an average in New England of 4.62 per cent to an average in the Pacific states of only one one-hundredth of one per cent.

The railways of the country employ about 900,000 persons and the risk of the occupation is considerable, since 35 persons annually in each thousand are injured and three persons per thousand killed. In 1895 wages of conductors averaged \$3.04 per day; engineers \$3.65; firemen \$2.05; other trainmen \$1.90; station agents \$1.74. The accidents to passengers, although quite numerous in the aggregate, are not large in proportion to the number carried safely. For instance, in 1895 of the 544 millions of passengers only 1487 were injured, or about one in 37,000. The following shows the number and causes of steam railway accidents from 1885 to 1895 inclusive:

KIND OF ACCIDENT.	1895	1894	1893	1892	1891	1890	1889	1888	1887	1886	1885
Collisions	602	613	996	1,062	1,137	1,041	749	804	700	501	464
Derailments	810	873	1,212	1,165	1,204	1,004	759	1,032	705	641	681
Other accidents.....	75	74	99	100	103	101	61	99	86	69	72
Total.....	1,487	1,560	2,307	2,327	2,444	2,146	1,569	1,935	1,491	1,211	1,217

In regard to remarkable railway speed, the fastest time on record was made by the Empire State express on the New York Central and Hudson River railroad, May 11, 1893, in a run of one mile from Crittenden west which was made in thirty-two seconds, being equivalent to 112½ miles an hour. This was done with locomotive 999 (afterwards exhibited at the World's fair, at Chicago), the engineer being Charles Hogan. The fastest time on record for a distance of over 440 miles was made by the Lake Shore and Michigan Southern railroad from Chicago to Buffalo, and to New York via New York Central railroad, in October, 1895. The fastest long distance run less than 440 miles was on the New York Central railroad, Sept 11, 1895, from New York City to Buffalo, 436½ miles, in 407 minutes actual time. Average speed maintained, 64½ miles an hour, with 2 stops and 28 slow-ups.

The fastest time between the two oceans was between Jersey City and San Francisco in three days, seven hours and thirty-five minutes.

Railway Progress to the South of Us.

Very rapid progress is being made by our southern neighbors in the extension of railroads, especially in Mexico, Brazil, Argentine Republic and Uruguay. Beside the nearly 200,000 miles in the United States, the mileage looks small, but considering the general development of the region, the showing is a good one and a favorable comparison may be made with many of the countries of Europe. Mexico in 1898 has almost 7000 miles of railway. The Argentine Republic has been spending immense sums and fully 9000 miles of railroad are open to traffic. Brazil operates 8000 miles. Chile was a pioneer in this

He that lives longest sees most.

direction and now owns about 2000 miles of railway. Thus the above four republics have together more miles of railway than Great Britain, France, Germany or any other European country. Argentine has more miles than Italy, and Brazil more than Norway and Sweden together,

The Railroad Business.

From Poor's Railway Annual, 1897.

Statement showing the mileage, equipment, liabilities and assets, mileage operated, traffic operations, gross and net earnings, interest and dividend payments, etc., of all the surface steam railroads in the United States at the close of their respective fiscal years ending in 1891 to 1896 inclusive (omitting, in 1896, all switching and private roads not reporting operations):

	1896	1895	1894	1893	1892	1891
	<i>Miles.</i>	<i>Miles.</i>	<i>Miles.</i>	<i>Miles.</i>	<i>Miles.</i>	<i>Miles.</i>
Mileage of railroads	178,549	179,821	178,054	175,441	171,804	167,845
2d track, sidings, etc.	56,933	55,209	54,701	53,410	49,823	46,683
Total track.....	235,482	235,031	232,755	228,852	221,628	214,528
Steel rails in track..	207,618	206,381	197,491	191,717	182,710	174,775
Iron rails in track..	27,863	28,650	35,263	37,134	38,917	39,753
Locomotive engines	No. 36,080	No. 36,610	No. 35,813	No. 36,012	No. 35,281	No. 33,563
Cars—Passenger....	24,788	26,419	26,345	27,169	24,881	23,083
Bag, mail, etc.	7,839	7,891	7,937	7,805	7,900	7,368
Freight.....	1,250,061	1,230,798	1,191,866	1,161,282	1,168,849	1,110,286
Tot. revenue cars	1,272,688	1,265,108	1,226,148	1,196,256	1,201,630	1,140,737
<i>Liabilities.</i>	\$	\$	\$	\$	\$	\$
Capital stock.....	5,290,730,567	5,182,121,999	5,027,604,717	5,021,576,551	4,863,119,073	4,751,750,498
Bonded debt.....	5,416,074,969	5,640,942,567	5,605,775,764	5,510,225,528	5,405,049,969	5,178,821,989
Unfunded debt.....	339,502,302	418,505,092	382,927,834	409,909,043	285,455,287	345,102,632
Current accounts...	386,382,440	429,331,956	438,911,691	381,575,253	417,466,957	374,051,161
Total liabilities.	11,432,690,278	11,670,901,614	11,455,220,006	11,323,286,375	10,971,091,286	10,649,726,280
Excess of assets } over liabilities.. }	364,806,935	358,622,751	353,205,967	406,755,426	388,469,733	341,697,259
Total assets.....	11,797,497,213	12,029,524,365	11,808,425,973	11,730,036,801	11,359,561,019	10,991,423,539
Miles of RR. operat'd	180,891.19	179,153.62	176,220.55	173,361.38	170,606.84	164,261.91
Passengers carried..	535,120,756	529,756,259	569,660,216	597,056,539	575,769,678	556,015,802
Passenger mileage..	13,054,840,243	12,609,082,551	13,600,531,635	14,979,847,458	13,697,343,804	13,316,925,239
Tons freight moved..	773,863,716	755,799,883	674,714,747	757,464,480	749,331,860	704,398,609
Freight mileage....	93,885,853,634	88,567,770,801	82,219,900,498	90,552,087,290	84,448,197,130	81,210,154,523
Traffic earn'gs—pass	\$ 265,313,258	\$ 260,929,741	\$ 275,352,190	\$ 310,442,870	\$ 293,557,476	\$ 290,799,696
Freight.....	770,424,013	743,784,451	700,477,409	808,494,668	816,716,759	754,185,910
Miscellaneous...	89,894,754	87,681,245	91,113,759	88,168,488	81,582,864	80,549,209
Total.....	1,125,632,025	1,092,395,437	1,066,943,358	1,207,106,026	1,191,857,099	1,125,534,815
Net earnings.....	332,333,756	323,196,454	317,757,399	358,648,918	352,817,405	350,807,370
Rec'pts from other } sources..... }	104,007,542	113,768,075	96,158,834	111,166,837	114,428,952	101,139,823
Total avail. revenue	436,341,298	436,964,529	413,916,233	469,815,755	467,246,357	451,947,193
<i>Payments.</i>						
Rentals, tolls, etc...	59,081,058	68,885,266	60,840,237	64,698,368	62,541,445	64,243,732
Interest on bonds...	242,415,494	239,944,229	234,702,912	236,755,805	229,909,292	222,652,306
Other interest.....	7,996,456	8,191,655	7,444,802	7,107,718	6,593,287	5,917,593
Dividends on stock..	81,304,854	81,375,774	83,478,669	93,537,681	81,536,811	89,099,757
Miscellaneous.....	34,233,688	33,404,887	38,220,068	38,190,641	62,708,646	31,008,271
Total payments.	425,031,550	431,801,811	424,686,688	440,290,213	413,289,481	412,921,659
Balance, surplus } or deficit..... }	\$ 11,309,748	\$ 5,162,718	\$ 10,770,455	\$ 29,525,542	\$ 53,956,876	\$ 39,025,534

while Mexico has a much greater mileage than Holland and Belgium, together. Even Chile has a railway mileage about equal to that of Switzerland.

But the chief railway enterprise now being considered by the two halves of the American hemisphere is that of an inter-continental rail-

Great talkers are little doers.

way traversing both continents north and south. Lines have already been completed into Mexico and the Mexican Southern company has extended its lines nearly to the frontier of Guatemala. The Guatemala Central is building a line which will connect with the Mexican railways and extend to the frontier of Salvador. In Salvador, also, lines are under way which when completed will enable the traveler to go by rail from New York or Chicago to the location of the projected Nicaragua canal. Concessions have been granted for other parts of the inter-continental line in Central America. In South America lines exist in short sections. The aim of the entire project is to complete the railway connection through Central America, Colombia, Ecuador, Peru and Chile, with lateral lines extending through Venezuela, Bolivia, Brazil, Argentine, Paraguay and Uruguay.

The Inter-Continental Railway Commission is now preparing an extended report upon the subject. When constructed, the proposed road will do much to unite and develop the commercial energies of the American republics.

American and French Railroads.

Railroads in France are more profitable than those of the United States. In 1896, the French roads earned an average of \$5250 net profit for each mile, while American roads made only \$1900 per mile.

Although three-fifths of the French railroads are operated by the government, this fact is not the explanation of the good profits made; for the government roads cost more per mile to operate and earn less than do the two-fifths which are under private control. The explanation lies rather in the difference of conditions in the two countries.

France is a densely settled region with 1500 people per mile of railway, as against 385 people per mile of railway in the United States. All the thirty-eight millions of French people are crowded into a space considerably smaller than the state of Texas, and these must give all their traffic to about 25,000 miles of railway, while in the United States about twice the number of people are scattered over an area seventeen times as large as France, and their patronage is competed for by 180,000 miles of railway. There are 5.7 miles of railway per 100 sq miles and 26.1 miles of road to each 10,000 people, while France has only nine-tenths of a mile of railroad per 100 square miles and six-tenths of a mile of road per 100,000 people. Distances and competition being so much greater, the earnings per mile of American roads must necessarily be smaller. Passenger rates are a little lower in France, 1.53 cents per mile, while in America the charge averages about two cents per mile, but on the other hand French railroads charge 1.24 cents per ton per mile for hauling freight, while American corporations do similar work for eight-tenths of a cent per mile.

Complaint has been made about the excessive cost and capitalization of the American road; the stock and bonds and debts which represent the total cost amount to nearly twelve thousand million dollars. But the French road, with less than one-seventh the number of miles, costs more than one-third as much for construction (\$3,160,000,000), yet upon this large capital the French corporations, with some help from the government, manage to earn about 4 per cent.

By the aid of steam one man can do the work of 120 without its aid. Six cents' worth of coal will pump as much water in a few minutes as could 20 men in ten hours at a cost of say \$20.

Prussia's Profits from Railroads.

Some government railroads do not pay; others are very profitable. Those of Prussia not only pay their own way but they provide a good share of the cash needed to pay the general expenses of the government. In Prussia the tendency is toward state and city control of all sorts of transportation and communication and both the people and the public officials have become educated to get the most from the new state of affairs. In the year closing June 30, 1897, the Prussian railroads, after paying their own expenses, earned a surplus of \$119,000,000. After meeting interest on money and bonds, between \$54,000,000 and \$57,000,000 remained to pay general expenses of the Prussian government. In fact, these profitable railroads paid more than one-half the entire costs of the government.

The World's Railways.

In recent years the most remarkable feature of railway development is the extension of steam highways in Asia. From 1891 to 1896 5000 miles of railroads were built in Asia. India has two-thirds of the Asiatic railroads, but China and Siberia are now advancing very fast, and the Siberian trunk line will be the longest in the world. Among European nations, Russia has built the most railroads during the past five years. Even Africa is becoming a region of railroads in the southern part of the continent. The railroads of the world extended in a line would reach seventeen times around the earth and their capital cost is thirty-five billions of dollars. The following shows the pre-eminence of America in existing railways and also in per cent of new construction. The total railway mileage of the world for 1898 is fully half a million miles.

The World's Railways.

	Miles.		Increase.	Per cent.
	1895.	1891.		
Europe	155,284	141,552	13,732	9.7
Asia	26,890	22,023	4,867	22.1
Africa	8,169	6,522	1,647	25.2
America	229,722	212,724	16,998	8.0
Australia	13,888	12,322	1,566	12.7
The world	433,953	395,143	38,810	9.8

Railways of Canada.

YEAR ENDED 30TH JUNE.	Miles in operation.	Train mileage.	Number of pas- sengers.	Tons of freight.	Earnings.	Working expenses.	Proportion of expen's to receipts.
1875	4,856½	17,680,168	5,190,416	5,670,836	\$19,470,539	\$15,775,532	81.
1890	13,256	41,849,329	12,821,262	20,787,469	46,843,826	32,913,350	70.
1891	14,009	43,399,178	13,222,568	21,753,021	48,192,099	34,960,449	73.
1892	14,588	44,448,468	13,533,414	22,189,923	51,685,768	36,488,228	70.
1893	15,020	44,385,953	13,618,027	22,003,599	52,042,397	36,616,033	70.
1894	15,627	43,770,029	14,462,498	20,721,116	49,552,528	35,218,433	71.
1895	15,977	40,661,890	13,987,580	21,524,421	46,785,487	32,749,669	70.

During the period covered by the table the train mileage increased 130 per cent, the number of passengers carried 169 per cent, and the tons of freight transported 280 per cent. The earnings increased in the same period 140 per cent, and the working expenses, instead of keeping pace with the earnings, increased only 107 per cent. The last column in the table shows the proportion of expenses to receipts year by year. Taking 1895, there were only three years in which the proportion of earnings consumed in expenses was as small. There was a decrease in the total receipts in 1895 of \$2,767,041 as compared with the previous year.

Principal Railroads of the United States and Canada.

SYSTEM.	Headquarters.	Track Mileage.	Capital stock in Millions.	Bonded Debt in Millions.	Express Line.
Atchison, Topeka & Sante Fe,	Chicago, Ill.,	6,435	223	174	Wells, Fargo & Co
Atlantic Coast Line,	Wilmington, N. C.,	1,456	5	5	Southern.
Baltimore & Ohio,	Baltimore, Md.,	2,095	25	130	United States.
Baltimore & Ohio Southwestern,	Cincinnati, O.,	923	30	23	United States.
Boston & Albany,	Boston, Mass.,	378.6	25	8	Adams & Ameri.
Boston & Maine,	Boston, Mass.,	1,717	22	25	American.
Buffalo, Rochester & Pittsburg,	Rochester, N. Y.,	316	6	10	American.
Burl'ton & Mis'ri Riv. R. R. in Neb.	Omaha, Neb.,	3,524			Adams.
Burlington & Northern,	Cedar Rapids, Ia.,	1,136	6	16	United States.
Canadian Pacific,	Montreal, Quebec,	6,987	63	48	Dominion.
Central Pacific R. R.,		1,360	68	61	
Central R. R. of Georgia,	Savannah, Ga.,	1,119	5	53	Southern.
Central R. R. of New Jersey,	143 Liberty St., N. Y.	676	22	50	U. S. & Adams.
Central Vermont,	St. Albans, Vt.,	645	2	10	American.
Chesapeake & Ohio,	Richmond, Va.,	1,444	61	65	Adams.
Chicago & Alton,	Chicago, Ill.,	959	22	9	United States.
Chicago & Eastern Illinois,	Chicago, Ill.,	502	11	20	American.
Chicago & Grand Trunk,	Montreal, Quebec,			12	National.
Chicago & Northwestern,	Chicago, Ill.,	5,031	61	132	American.
Chicago & West Michigan,	Grand Rapids, Mich.	581	7	7	American.
Chicago, Burlington & Quincy,	Chicago, Ill.,	2,244	82	129	Adams.
Chicago Great Western,	St. Paul, Minn.,	932	21		United States.
Chicago, Milwaukee & St. Paul,	Chicago, Ill.,	6,151	76	139	United States.
Chicago, Rock Island & Pacific,	Chicago, Ill.,	3,574	46	63	United States.
Cincinnati, Hamilton & Dayton,	Cincinnati, O.,	614	16	8	United States.
Clevel'd, Cin'nati, Chi'go & St. L's	Cincinnati, O.,	2,355	38	55	American.
Delaware & Hudson,	Albany, N. Y.,	704	35	5	National.
Delaware, Lackawanna & Western	26 Exchange Pl., N.Y	932	26	3	United States.
Denver & Rio Grande,	Denver, Col.,	1,666	62	43	Den. & R.Grande.
Duluth, So. Shore & Atlantic,	Marquette, Mich.,	584	22	21	Western.
Erie,	21 Cortlandt St., N.Y.	2,087	146	138	Wells, Fargo & Co.
Fitchburg,	Boston, Mass.,	459	22	24	American, Nat'l
Flint & Pere Marquette,	East Saginaw, Mich.	622	6	10	American.
Florida, Central & Peninsula,	Jacksonville, Fla.,	949	5	8	Southern.
Fort Worth & Denver City,	Fort Worth, Texas,	470	7	8	Pacific.
Grand Rapids & Indiana,	Grand Rapids, Mich.	565	6	9	Adams.
Grand Trunk,	Montreal, Quebec,	4,186			Canadian, Nat'l.
Great Northern,	St. Paul, Minn.,	4,488	25	15	Great Northern.
Houston & Texas Central,	Houston, Tex.,	510		18	Wells, Fargo & Co.
Illinois Central,	Chicago, Ill.,	4,391	52.5	75	American.
Intercolonial,	Moncton, N. B.	1,150			Canadian Domin.
International & Great Northern,	Palestine, Texas,	825		17	Pacific.
Iowa Central,	Marshalltown, Ia.,	515	14	6	Adams
Kan. City, Ft. Scott and Memphis,	Kansas City, Mo.,	1,227	13	21	Adams, Southern.
Lake Erie & Western,	80 Broadway, N. Y.,	887	24	10	United States.
Lake Shore and Michigan South'n	Cleveland, O.,	1,476	50	47	American, U. S.
Lehigh Valley,	Philadelphia, Pa.,	1,235	40	40	United States.
Long Island,	Long Island C'y, L. I.	379	12	15.5	Long Island.
Louisville & Nashville,	Louisville, Ky.,	4,865	53	79	Adams & Southe'n
Louisville, New Albany & Chicago	Chicago, Ill.,	537	15	11	American.
Maine Central,	Portland, Me.,	822	5	15	American.
Michigan Central,	Chicago, Ill.,	1,663	19	21	American.
Minneapolis & St. Louis,	Minneapolis, Minn.,	588.7	13	10	United States.
M'neap's, St. Paul & Sault St. Marie	Minneapolis, Minn.,	1,160	21	36	Western.
Missouri, Kansas & Texas,	St. Louis, Mo.,	2,198	60	67	American.
Missouri Pacific,	St. Louis, Mo.,	5,325	47	62	Pacific.
Mobile & Ohio,	Mobile, Ala.,	685	5	18	Southern.
Nashville, Chattanooga & St. Louis	Nashville, Tenn.	906	10	14	Southern.
New England,	Boston, Mass.,	528	19	10	United States.
N. Y. Central & Hudson River,	Albany, N. Y.,	2,635	100	70	American, Nat.
N. Y., Chicago & St. Louis,	Cleveland, O.,	523	30	19	National.

Principal Railroads of the United States and Canada—Continued.

SYSTEM.	Headquarters.	Track Mileage.	Capital stock in Millions.	Debt Bonded in Millions.	Express Line.
N. Y., New Haven & Hartford,	New Haven, Conn.,	1,464	48	7	Adams.
N. Y., Ontario & Western,	56 Beaver St., N. Y.,	480	58	14	Adams.
N. Y., Susquehanna & Western,	26 Cortlandt St. N. Y.,	222	25	13	National.
Norfolk & Western,	Roanoke, Va.,	1,506	89	89	Adams.
Northern Pacific,	45 Wall St., N. Y.,	4,370	154.8	131	Northern Pacific
Northwestern Line,	Chicago, Ill.,	7,931			American.
Oregon R. R. & Navigation Co.,	Portland, Ore.,	1,053	35	20	Pacific.
Pennsylvania R. R.,	Broad St. Sta., Phil.,	8,882	129	124	Adams.
Plant System,	12 W. 23d St., N. Y.,	1,941			Southern.
Queen & Crescent Route,	273 Broadway, N. Y.,	1,143			Southern, Adams
Reading R. R. System,	Philadelphia, Pa.,	1,265	140	52	United States.
Rio Grande Western,	Salt Lake City, Utah	563	16	15	Den. & Rio Grande
San Antonio & Aransas Pass,	San Antonio, Texas,	686	5	19	Wells, Fargo & Co
Seaboard Air Line,	Portsmouth, Va.,	945		3	Southern.
Southern Pacific Co.,	San Francisco, Cal.,	6,761	108	70	Wells, Fargo & Co
Southern Railway,	Washington, D. C.,	4,824	174	103	Southern.
St. Joseph & Grand Isle,	St. Joseph, Mo.,	454	19	2.5	Pacific.
St. Louis & San Francisco,	St. Louis, Mo.,	1,430	45	38	Wells, Fargo & Co
St. Louis Southwestern Ry. Sys.,	St. S. S. W. Ry., Tex.	1,226	36	28	Pacific.
Terre Haute & Indianapolis,	St. Louis, Mo.,	647			Adams.
Texas & Pacific,	Dallas, Texas,	1,490	37	50	Pacific.
Toledo & O. Cen. Kanawha & Mich	Toledo, Ohio,	531	19	9	United States.
Toledo, St. Louis & Kansas City,	Toledo, Ohio,	453	17	9	National.
Union Pacific, Denver & California	Denver, Col.,	881	34	22	Den., R. Gra., Pac
Union Pacific System,	Omaha, Neb.,	4,442	61	127	Pacific.
Wabash Railroad,	St. Louis, Mo.,	2,125	52	81	Pacific.
Western N. Y. & Pennsylvania,	Buffalo, N. Y.,	677	5	30	American.
Wisconsin Central Lines,	Milwaukee, Wis.,	828	12	12	National.

Railway Statistics of Chief Nations. (Mulhall.)

	Miles open.	Passen- gers carried.	Tons of traffic.	Tons traffic per mile.	Capital.	Receipts	Rate of profit on capital
		Millions.	Millions.		Millions.	Millions.	
Great Britain.....	20,910	912	325	15,500	\$4,728	\$403	3.3
France.....	24,970	337	97	3,900	3,183	264	3.5
Germany.....	27,850	521	242	8,700	2,664	341	4.5
Russia.....	23,100	55	79	3,400	1,675	168	4.2
Austria.....	18,320	199	215	11,700	1,781	154	3.2
Italy.....	8,800	51	17	1,900	883	48	1.9
Scandinavia.....	8,060	33	18	2,100	259	24	2.6
Belgium.....	2,820	97	45	16,000	360	38	4.2
Holland.....	2,320	24	9	5,500	221	14	3.0
Switzerland.....	2,270	40	10	4,400	211	19	3.3
Other European....	11,160	23	11		830	53	3.2
Europe.....	150,580	2,292	1,068	7,100	16,795	1,526	3.5
United States.....	180,000	541	638	3,600	10,848	1,071	3.2
Canada.....	16,000	14	21	1,350	893	48	1.6
Australia.....	13,620	91	12	900	667	43	3.0
Cape Colony.....	2,840	8	1	350	134	14	5.0
India.....	18,780	146	33	1,800	922	77	4.4
Spanish America...	28,880	24	8		1,555	101	2.5
Various.....	9,480	19	9		562	48	3.0
The World.....	420,180	3,135	1,790	4,200	32,376	2,928	3.1

The railway up the Swiss mountain Brienzer Rothhornbahn is the highest in Europe. It ascends 7836 feet, or nearly a mile and one-half. The journey occupies an hour and a half and commands a magnificent Alpine view.

Street Railways, 1896.

POOR'S RAILWAY ANNUAL.

	Miles of track.	Mileage, electrics.	Mileage, horse.	No. of passenger cars	Thousands capital stock.	Thousands Bonds.
Maine.....	112	109	3	136	\$1,503	\$1,798
N. Hampshire..	58	41	14	114	348	519
Vermont.....	29	29	.....	19	475	202
Massachusetts.	1,215	1,112	98	2,819	39,147	21,014
Rhode Island..	140	132	4	251	11,182	8,629
Connecticut...	331	328	4	423	9,736	7,569
Total N. E....	1,883	1,753	122	3,762	62,391	41,730
New York.....	1,693	1,341	287	4,441	175,261	113,194
New Jersey....	772	748	2,255	476	39,343	34,289
Pennsylvania..	1,764	1,697	30	2,830	145,960	77,523
Delaware.....	29	29	.....	63	419	600
Maryland.....	401	332	33	488	18,297	15,533
Dist. of Colum.	121	78	15	665	13,882	4,074
Tot. of group.	4,780	4,224	388	8,963	392,962	245,215
Ohio.....	1,243	1,167	36	2,122	60,891	24,224
Michigan.....	575	563	3	797	9,621	12,393
Indiana.....	355	335	19	313	10,470	8,471
Illinois.....	1,335	950	103	4,791	85,054	55,338
Wisconsin.....	263	276	12	446	10,260	8,790
Tot. of group.	3,600	3,291	174	8,469	176,296	109,216
Virginia.....	220	207	10	220	5,300	4,800
West Virginia..	37	27	10	66	1,040	634
North Carolina	47	40	4	33	586	666
South Carolina	46	10	36	87	462	309
Georgia.....	286	254	20	119	4,126	4,956
Florida.....	63	40	11	63	319	95
Tot. of group.	700	578	91	588	12,133	11,453
Alabama.....	241	95	16	193	5,577	2,780
Mississippi....	30	.....	16	60	180	117
Tennessee.....	242	212	16	155	5,198	3,936
Kentucky.....	284	234	41	478	10,530	9,935
Louisiana.....	201	180	22	355	14,412	8,929
Total.....	1,000	721	110	1,241	35,896	25,697
Missouri.....	791	635	38	2,115	39,626	30,808
Arkansas.....	70	38	32	113	1,441	770
Texas.....	374	277	69	342	5,361	4,817
Kansas.....	163	110	43	157	3,797	2,826
Colorado.....	241	202	9	430	7,000	5,669
New Mexico....	2	.....	2	8	.....	.....
Total.....	1,641	1,262	193	3,165	7,224	44,890
Iowa.....	257	220	17	249	7,597	3,713
Minnesota.....	329	315	7	29	19,021	5,759
Nebraska.....	241	201	40	285	8,758	4,420
South Dakota..	37	13	17	20	400	75
Wyoming.....	5	.....	5	10	.....	.....
Montana.....	55	54	.....	28	1,700	1,347
Total.....	924	803	86	621	37,476	15,314
Washington...	279	248	4	168	9,307	5,586
Oregon.....	140	108	5	180	2,661	2,470
California.....	844	466	176	441	40,691	23,386
Idaho.....	4	4	.....	.....	53	.....
Arizona.....	8	6	2	6	.....	.....
Utah.....	100	10	.....	17	1,456	1,000
Total.....	1,374	923	187	1,812	54,168	32,436
United States..	15,903	13,556	1,351	28,621	828,547	529,950
Canada.....	486	465	21	583	15,584	5,017

The total length of the common roads of this country is estimated by Gen Stone of the U. S. Road bureau at over 1,300,000 miles, maintained at a yearly cost of about \$20,000,000, most of which large sum is wasted because of the poor quality of the roads originally.

Merchant Marine of the United States.

The annual report of the Commissioner of Navigation shows the tonnage, geographical distribution, material of construction, motive power, and employment of the documented merchant marine of the United States in 1896, compared with 1895, as follows:

Merchant Marine of the United States on June 30.

<i>Geographical Distribution.</i>	1895.		1896.	
	<i>Number.</i>	<i>Gross tons.</i>	<i>Number.</i>	<i>Gross tons.</i>
Atlantic and Gulf coasts.....	17,136	2,679,779	16,786	2,667,313
Pacific coast.....	1,525	433,502	1,560	437,972
Northern lakes.....	3,342	1,241,459	3,333	1,324,068
Western rivers.....	1,237	281,220	1,229	274,527
Total.....	23,240	4,635,960	22,908	4,703,880
<i>Power and Material.</i>				
Sail:†—Wood.....	16,633	2,361,227	16,244	2,310,819
Iron and steel.....	53	61,932	69	85,854
Total.....	16,686	2,423,159	16,313	2,396,673
Steam:—Wood.....	5,708	1,304,777	5,707	1,303,095
Iron and steel.....	846	908,024	888	1,004,113
Total.....	6,554	2,212,801	6,595	2,307,208
Canal boats.....	680	75,051	682	75,224
Barges.....	1,363	382,632	1,357	393,188
Total.....	2,043	457,683	2,039	468,412
<i>Trade.</i>				
Registered.....	1,260	838,187	1,257	844,954
Enrolled and licensed.....	21,980	3,797,773	21,651	3,858,927
<i>Construction During 1896.</i>				
Total built and documented.....	694	111,602	723	227,096
<i>Geographical Distribution.</i>				
Atlantic and Gulf coasts.....	453	59,983	418	91,724
Pacific coast.....	74	7,144	93	10,818
Northern lakes.....	93	36,353	117	108,782
Western rivers.....	74	8,122	95	15,772
Total.....	694	111,602	723	227,026
<i>Power and Material.</i>				
Sail:—Wood.....	394	29,631	364	51,551
Steel.....	3	5,269	5	13,685
Steam:—Wood.....	213	27,133	237	41,640
Iron and steel.....	35	42,620	49	96,389
Canal boats.....	11	1,225	13	1,494
Barges:—Wood.....	33	5,018	49	19,190
Steel.....	5	706	6	3,147
Total.....	694	111,602	723	227,096

† Including barges.

These figures show a continuous and most gratifying growth of our shipping on the Great Lakes, where, within relatively a short time, natural advantages have enabled us to build a merchant navy surpassed in extent only by those of Great Britain and Germany, and surpassing that of France or Norway, or of any other two foreign powers combined.

The Suez canal is ninety two miles long and cost \$102,750,000. Three thousand four hundred and thirty-four ships, of 3,448,383 tons net, passed through the Suez canal in 1895, yielding \$15,074,017 in dues. Total passengers on vessels, 216,936. Nearly 95 per cent of the vessels were enabled to steam at night through the canal owing to the general use of the electric light. As to the nationality of the vessels, the English were 2318, German 314, French 278, Dutch 192, Austro-Hungarian 72, Italian 78, Norwegian 57, Turkish 36, Spanish 33, Russian 39, Portuguese 3, Egyptian 2, Japanese 2, American 5 (war ships 3, merchant vessels 2), Chinese 2, Danish 1, Swedish 2.

It is never too late to mend.

Our Merchant Marine Since 1848.

Tonnage of the sailing and steam vessels of the merchant marine of the U. S. employed in the foreign and coastwise trade and in the fisheries.

YEAR ENDING JUNE 30.	EMPLOYED IN THE—				Motive power.		Total. Mill'ns of tons	Annual increase or decrease
	Millions of tons.		Fisheries.		Sailing.	Steam.		
	Foreign Trade.	Coast- wise Trade.	Whale.	Cod and Mackerel				
			Tons.	Tons.	Tons.	Tons.		Per cent.
1848	1	2	192,613	133,405	2,726,151	427,891	3	11.09
1857	2	2	195,842	140,196	4,235,059	705,784	5	1.42
1866	1	3	105,170	98,231	3,227,266	1,083,512	4	15.42
1876	2	3	39,116	87,802	3,107,086	1,172,372	4	11.83
1886	1	3	23,138	80,705	2,608,152	1,522,984	4	2.16
1890	1	3	18,633	68,367	2,565,409	1,859,088	4	2.71
1891	1	4	17,231	68,933	2,668,495	2,016,264	5	5.88
1892	1	4	17,052	69,472	2,690,504	2,074,417	5	1.71
1893	1	4	16,604	70,575	2,641,799	2,183,272	5	1.26
1894	1	4	16,482	71,573	2,494,599	2,189,430	5	2.90
1895	1	4	15,839	69,050	2,423,159	2,212,801	5	1.30
1896	1	4	15,121	68,630	2,396,672	2,307,208	5	1.47

Carrying Trade.

Value of foreign carrying trade of the United States in American and foreign vessels, etc.

Total U. S. Imports and Exports.

YEAR ENDING JUNE 30.	BY SEA. In millions.			Percent car- ried in American vessels.	In millions.	
	In American vessels.	In foreign vessels.	Total.		By land in vehicles.	Total by land and sea
1860	\$507	\$255	\$762	66.5		\$762
1870	353	639	992	35.6		992
1880	258	1,224	1,482	17.4	\$21	1,504
1890	202	1,371	1,573	12.9	74	1,647
1891	206	1,450	1,656	12.5	73	1,729
1892	220	1,565	1,785	12.3	73	1,858
1893	198	1,428	1,626	12.2	88	1,714
1894	195	1,273	1,468	13.3	79	1,547
1895	171	1,286	1,457	11.7	83	1,590
1896	188	1,378	1,566	12.0	97	1,662

The carrying trade was largely in the hands of American ship owners until the time of the Civil war, when northern commerce was crippled by confederate privateers. The ground then lost has never been regained.

American and Foreign Commerce.

Comparative growth of the tonnage of the merchant navies of the United States and of the principal maritime countries of Europe from 1860 to 1896.

COUNTRIES.	1860	1870	1880	1890	1893	1894	1895	1896
American.....	5,299,175	4,194,740	4,068,034	4,424,497	4,825,071	4,684,029	4,635,960	4,703,880
British.....	5,710,968	7,149,134	8,447,171	11,597,106	12,788,282	13,192,566	13,424,146	13,563,597
French.....	996,124	1,072,048	919,298	1,045,102	1,052,022	1,128,369	1,154,783	1,148,970
Norwegian.....	558,927	1,022,515	1,518,655	1,584,355	1,710,313	1,703,920	1,713,611	1,705,722
Swedish.....		346,862	542,642	475,964	505,711	505,669	515,010	552,888
Danish.....		178,646	249,466	280,065	323,801	362,358	366,585	388,540
German.....		982,355	1,182,097	1,569,311	1,735,683	1,841,014	1,865,490	1,930,460
Dutch.....	433,922	389,614	328,281	378,784	442,071	467,872	469,695	497,451
Belgian.....	33,111	30,149	75,666	110,571	115,709		116,331	132,464
Italian.....		1,012,164	999,196	816,567	796,247	835,274	838,101	821,953
Austria-Hun'rn..		329,377	290,971	269,648	298,674	302,656	306,119	295,805
Greek.....	263,075	404,063		307,640	379,699	373,523	381,180	385,935

The above tables have been compiled from the last annual report of the Commissioner of Navigation of the United States, except that the Bureau Veritas furnished the figures for the shipping of European nations in 1895 and 1896.

Look before you leap.

Rural Free Delivery of Mail.

The movement for free collection and delivery of mail by carriers in country districts was inaugurated by the American Agriculturist. The scheme was favorably considered by Postmaster General John Wanamaker, who commenced experiments which were continued by the succeeding administrations upon a smaller scale.

The popular demand, strongly emphasized by the agricultural press, became so urgent that new trials have been made by the present post office authorities, with every prospect of success. The great obstacle, that of the extra expense incurred, has been to some extent met by

Statistics of the Postal Service.

YEAR ENDING JUNE 30.	Post offices.	Rev'n'e of the dep't.	Expended for transportation.		Tot. ex- pend're of the dep't.	Railway mail transportation.		Railway mail service.	
			Domes- tic mail	Foreign mail.		Annual cost.	Av. an. cost per mile.	No. of em- ployes.	Annual expend- iture.
		Mil'n's.	Mil'n's.	Mil'n's.	Mil'n's.	Mil'n's.			Mil'n's.
1897	71,254	\$82.7	\$49.9	\$1.8		\$30.2	.12	7,602	\$7.8
1896	70,360	82.5	48.0	1.5	\$90.6	32.4	.12	7,408	7.6
1895	70,064	77.0	46.3	1.2	86.8	31.2	.12	7,045	7.2
1894	69,805	75.0	45.4	1.2	84.3	30.4	.11	6,852	7.0
1893	68,403	75.9	41.2	1.1	81.1	28.9	.11	6,645	6.7
1892	67,119	70.9	39.1	0.8	76.3	27.1	.11	6,417	6.5
1891	64,329	65.9	37.5	0.6	71.7	25.2	.11	6,032	6.5
1890	62,401	60.9	34.1	0.6	65.9	23.4	.11	5,836	5.9
1889	58,999	56.2	32.4	0.5	61.4	21.6	.11	5,448	5.6
1888	57,376	52.7	29.3	0.5	56.5	19.5	.11	5,094	5.3
1887	55,157	48.3	27.9	0.4	53.0	18.1	.11	4,851	5.0
1886	53,614	43.9	27.6	0.4	51.0	17.3	.11	4,573	4.7
1885	51,252	42.6	27.0	0.3	50.0	16.6	.11	4,387	4.5
1884	50,017	43.3	25.0	0.3	47.0	15.0	.11	3,963	4.2
1883	47,858	45.5	23.9	0.3	43.0	13.9	.11	3,855	3.7
1882	46,231	41.9	22.5	0.2	40.5	13.1	.11	3,570	4.0
1881	44,512	36.8	22.8	0.2	39.6	12.0	.11	3,177	3.5
1880	42,989	33.3	20.9	0.2	36.5	10.6	.11	2,946	3.1
1879	40,855	30.0	19.0	0.2	33.4	9.8	.11	2,609	2.9
1878	39,258	29.3	19.1	0.2	34.2	9.6	.11	2,608	2.6
1877	37,345	27.5	18.8	0.4	33.5	8.1	.11	2,500	2.6
1876	36,383	28.6	17.8	0.8	33.3	9.5	.12	2,415	2.5
1875	35,547	26.8	18.4	1.0	33.6	9.2	.12	2,242	2.5
1874	34,294	26.5	18.5	1.0	32.1	8.6	.12	2,175	2.4
1873	33,244	23.0	16.8	1.0	29.1	7.3	.11	1,895	2.2
1872	31,863	21.9	15.5	1.0	26.7	6.5	.10	1,647	2.0
1871	30,045	20.0	13.7	1.0	24.4	5.7	.10	1,382	1.7
1870	28,492	19.8	13.1	1.1	24.0	5.1	.11	1,106	1.4

consolidation of certain of the small post offices and supplying their place by carriers. Thus the cost of carriers is largely offset by the saving of postmasters' salaries and transportation charges.

In the few towns where experiments are being made, the mail is collected and delivered over an average territory of 36 square miles around each office. One carrier can travel 15 to 20 miles per day, collecting and delivering. Each farm is visited every week day, and 100 or more families are visited every trip made by the carrier. The system gives general satisfaction to the patrons and has resulted in an increase of mail matter collected and delivered, amounting in some cases to a gain of 8 to 10 per cent in the amount of collections alone. Carriers sell stamps and postal cards.

PRIVATE ROUTES.

In some districts farmers anxious to have their mail collected and delivered have paid private carriers to do the work, as provided by the

new Sperry law. By this method 20 persons or more must petition their postmaster to appoint a carrier. The postmaster appoints a suitable person to collect and deliver mail to the petitioners, who must pay the carrier at the rate of one cent or less, as mutually agreed, for each piece of mail delivered. These private carriers are responsible to the local postmasters and must give surety to the amount of \$100. They are entitled to the privileges of the government carriers but receive no pay from the department. The plan is intermediate between the present system and free delivery. Probably most of the private carriers' routes will become free delivery routes by the eventual extension of the free delivery system.

Rates of Postage.

[United States postal regulations.]

FIRST-CLASS MATTER.—Letters, matter wholly or partly in writing, drawings and plans containing written words, letters, or descriptive figures, and matter which is sealed against inspection, are first-class matter, and subject to the postage rate of 2 cents for each ounce or fraction thereof.

On local or drop letters, 2 cents for each ounce or fraction thereof.

Postal cards having anything attached, or having writing or printing on the face, other than the address, are subject to letter rates of postage.

SECOND-CLASS MATTER.—Embraces all newspaper and other periodical publications which are issued at stated intervals and as frequently as four times a year. On newspapers and periodical publications of the second class, when sent by others than the publisher or news agent, the postage shall be prepaid at the rate of 1 cent for each 4 ounces or fractional part thereof.

THIRD-CLASS MATTER.—Embraces books, circulars, photographs, printed labels, proof sheets, corrected proof sheets with manuscript copy accompanying the same, seeds, cuttings, roots, scions and plants, and postage shall be paid thereon at the rate of 1 cent for each two ounces or fractional part thereof.

FOURTH-CLASS MATTER.—Embraces blank address tags or labels, patterns, playing cards, visiting cards, ornamented paper, and all other matter of the same general character, the printing upon which is not designed to instruct, amuse, cultivate the mind or taste, or impart general information. This class also includes merchandise, and samples of merchandise, models, samples of dress, metals, minerals, cut flowers, and any other matter not included in the first, second and third classes, and which is not liable to destroy or otherwise damage the contents of the mail bag. Postage rate thereon, 1 cent for each ounce or fractional part thereof.

The sender's name and address should in all cases appear upon the wrapper of third and fourth class matter.

LIMIT OF WEIGHT.

A package must not exceed four pounds in weight, unless it be a single book. Second-class matter is not subject to the four-pound limitation.

PAYMENT OF POSTAGE.

On first-class matter the postage should be fully prepaid, but if two cents in stamps be affixed the matter will be forwarded and remainder due collected of addressee before delivery.

On second-class, third-class and fourth-class matter the postage must be fully prepaid.

THE REGISTRY SYSTEM.

All mail matter, including drop letters, may be registered; but not matter addressed to fictitious names, initials or box numbers, or bearing vague and indefinite addresses.

The registry fee is eight cents in addition to postage. It must be prepaid by stamps affixed.

The rates of postage to all foreign countries and colonies (except Canada and Mexico) are as follows:

Letters, 15 grams ($\frac{1}{2}$ ounce)..... 5 cents.

Postal cards, each..... 1 cent.

Double postal cards, each..... 4 cents.

Newspapers and other printed matter, per 2 ounces..... 1 cent.

Commercial papers:

Packets not in excess of 10 ounces..... 5 cents.

Packets in excess of 10 ounces, for each 2 ounces or fraction thereof..... 1 cent.

Samples of merchandise:

Packets not in excess of 4 ounces..... 2 cents.

Packets in excess of 4 ounces, for each two ounces or fraction thereof..... 1 cent.

Registration fee on letters or other articles..... 8 cents.

Ordinary letters for any foreign country (except Canada and Mexico) must be forwarded whether any postage is prepaid on them or not. All other mailable matter must be prepaid, at least, partially.

CANADA AND MEXICO.

Matter mailed in the United States addressed to Canada or Mexico is subject to the same postage rates and conditions as it would be if it were addressed for delivery in the United States.

MONEY ORDER SYSTEM.

The following are the fees for domestic money orders: For orders not exceeding \$2.50, 3c; exceeding \$2.50 and not above \$5, 5c; exceeding \$5 and not above \$10, 8c; exceeding \$10 and not above \$20, 10c; exceeding \$20 and not above \$30, 12c; exceeding \$30 and not above \$40, 15c; exceeding \$40 and not above \$50, 18c; exceeding \$50 and not above \$60, 20c; exceeding \$60 and not above \$75, 25c; exceeding \$75 and not above \$100, 30c. The maximum amount of a single order is \$100; and the maximum amount which may be issued at a "Limited Money Order

Office" is \$5. International money orders may be issued up to \$100, which is the maximum, and the rate is 10 cents on each \$10 or fraction thereof. Postal connections are now in operation for the exchange of money orders between the United States and the following countries: Great Britain, Switzerland, Germany, France, Italy, Canada, Newfoundland, Jamaica, New South Wales, Victoria, New Zealand, Queensland, Cape Colony, Windward Islands (Barbadoes, Grenada, St. Vincent and St. Lucia), Leeward Islands (Antigua, St. Christopher-Nevis, Dominica, Montserrat and the Virgin Islands), Belgium, Portugal (including the Azores and Madeira), Tasmania, Hawaii, Sweden, Norway, Japan, Denmark, Netherlands, Bahama Islands, Trinidad and Tobago, Austria-Hungary, British Guiana, Luxembourg, Bermuda, South Australia, Salvador and Hong Kong.

Suggestions to the Public.

(From the United States Official Postal-Guide.)

Mail all letters, etc., as early as practicable, especially when sent in large numbers, as is frequently the case with newspapers and circulars.

All mail matter at large post offices is necessarily handled in great haste and should therefore in all cases be so plainly addressed as to leave no room for doubt and no excuse for error on the part of postal employes. Names of states should be written in full (or their abbreviations very distinctly written) in order to prevent errors which arise from the similarity of such abbreviations as Cal., Col.; Pa., Va., Vt.; Me., Mo., Md.; Ia., Ind.; N. H., N. M., N. Y., N. J., N. C., D. C.; Miss., Minn., Mass.; Nev., Neb.; Penn., Tenn., etc., when hastily or carelessly written. This is especially necessary in addressing mail matter to places of which the names are borne by several post offices in different states.

Avoid as much as possible using envelopes made of flimsy paper, especially where more than one sheet of paper, or any other article than paper, is enclosed. Being often handled, and even in the mail bags subject to pressure, such envelopes not infrequently split open, giving cause of complaint.

Never send money or any other article of value through the mail except either by means of a money order or in a registered letter. Any person who sends money or jewelry in an unregistered letter not only runs a risk of losing his property, but exposes to temptation every one through whose hands the letter passes, and may be the means of ultimately bringing some clerk or letter carrier to ruin.

See that every letter or package bears the full name and post office address of the writer, in order to secure the return of the letter, if the person to whom it is directed cannot be found. A much larger portion of the undelivered letters could be returned if the names and addresses of the senders were always fully and plainly written or printed inside or on the envelopes. Persons who have large correspondence find it most convenient to use "special request envelopes;" but those who only mail an occasional letter can avoid much trouble by writing a request to "return if not delivered," etc., on the envelope.

When dropping a letter, newspaper, etc., into a street mailing box, or into the receptacle at a post office, always see that the packet falls into the box and does not stick in its passage; observe, also, particularly, whether the postage stamps remain securely in their places.

Postage stamps should be placed on the upper right hand corner of the address side of all mail matter.

The street and number (or box number) should form a part of the address of all mail matter directed to cities. In most cities there are many persons and even firms, bearing the same name. Before depositing any package or other article for mailing, the sender should assure himself that it is wrapped and packed in the manner prescribed by postal regulations; that it does not contain *unmailable* matter nor exceed the limit of size and weight as fixed by law; and that it is fully prepaid and properly addressed. The postage stamps on all mail matter are necessarily cancelled at once, and the value of those affixed to packages that are afterwards discovered to be short-paid or otherwise unmailable, is therefore liable to be lost to the sender.

All matter concerning lotteries, gift concerts, or schemes devised to defraud the public, or for the purpose of obtaining money under false pretences, is denied transmission in the mails.

Post Offices, Showing Classification and Money Order Stations.

	Whole number of offices.	Offices of the first class.	Offices of the second class.	Offices of the third class.	Whole No. of presid'l offices.	Offices of the fourth class.	Money order offices.	Money order stations	Limited money order offices.
Alabama..	2,221	3	3	30	36	2,185	311	.....	14
Alaska....	23	.....	.....	1	1	22	5	.....	.....
Arizona....	196	.....	3	7	10	186	46	.....	1
Arkansas...	1,742	1	5	32	38	1,704	261	.....	29
Cal.....	1,591	5	22	82	109	1,482	621	38	37
Colorado...	711	3	10	34	47	664	218	2	22
Conn.....	511	5	20	53	78	433	289	4	3
Delaware...	169	1	.....	10	11	158	48	42	.....
D. of C.....	13	1	.....	.....	1	12	48	41	.....
Florida....	1,016	1	7	20	28	988	246	2	20
Georgia....	2,379	4	7	33	44	2,335	373	1	24
Idaho.....	371	.....	1	10	11	360	84	.....	4
Illinois....	2,536	10	45	196	251	2,285	1,194	99	41
Indiana....	2,156	8	33	101	142	2,014	660	1	37
Ind. Ter...	469	.....	1	7	8	461	87	.....	6
Iowa.....	1,852	8	26	171	205	1,647	882	10	57
Kansas....	1,674	3	17	104	124	1,550	662	3	45
Ky.....	2,611	2	12	43	57	2,554	352	2	16
Louisiana..	1,030	1	4	17	22	1,008	193	9	37
Maine.....	1,201	3	12	50	65	1,136	388	.....	4
Maryland...	1,158	1	4	21	26	1,132	265	54	1
Mass.....	861	13	55	106	174	687	600	49	2
Michigan...	2,001	7	39	120	166	1,835	755	16	37
Minn.....	1,444	3	13	79	95	1,349	484	14	46
Miss.....	1,672	.....	5	36	41	1,631	267	.....	21
Missouri...	2,724	3	19	114	136	2,588	741	37	77
Montana...	426	2	4	15	21	405	116	1	8
Nebraska...	1,067	2	9	79	90	977	484	14	46
Nevada....	174	.....	1	5	6	168	37	.....	3
N. H.....	560	2	8	36	46	514	237	.....	2
N. J.....	903	8	39	49	96	807	419	30	1
N. M.....	304	.....	2	10	12	292	67	.....	6
N. Y.....	3,620	17	84	214	315	3,305	1,715	202	14
N. C.....	2,849	.....	9	32	41	2,808	306	.....	24
N. D.....	546	.....	2	19	21	525	156	.....	10
Ohio.....	3,281	11	54	134	199	3,082	1,099	39	57
Oklah' ma.	496	.....	3	13	16	480	73	.....	18
Oregon....	802	1	3	20	24	778	196	3	27
Penn.....	4,988	12	67	188	267	4,721	1,569	81	33
R. I.....	144	3	4	9	16	128	86	.....	.....
S. C.....	1,272	1	3	25	29	1,243	191	2	6
S. D.....	668	.....	7	31	38	630	221	.....	19
Tenn.....	2,626	4	5	38	47	2,579	318	6	22
Texas....	2,758	7	19	111	137	2,621	691	1	80
Utah.....	309	1	1	5	7	302	81	.....	3
Vermont...	558	1	8	32	41	517	254	1	2
Virginia...	3,207	3	13	43	59	3,148	435	8	9
Wash'ton...	810	3	3	26	32	778	217	2	25
West Va...	1,754	1	8	22	31	1,723	232	3	8
Wis.....	1,833	4	25	96	125	1,708	568	8	29
Wyoming...	275	.....	2	7	9	266	41	.....	2
Totals.	70,562	169	746	2,736	3,651	66,911	19,889	771	1,013

Applications for the establishment of post offices should be addressed to the First Assistant Postmaster-General, accompanied by a statement of the necessity therefor. Instructions will then be given and blanks furnished to enable the petitioners to provide the department with the necessary information.

It is unlawful to send an ordinary letter by express or otherwise outside of the mails, unless it be inclosed in a Government-stamped envelope. It is also unlawful to inclose a letter in an express package unless it pertains wholly to the contents of the package.

It is forbidden by the regulations of the post office department for postmasters to give to any person information concerning the mail matter of another, or to disclose the name of a box-holder at a post office.

A thing of beauty is a joy forever.

The Telegraph Business.

Telegraphs: Mileage of Lines and Wires. Number of offices and traffic of the Western Union Telegraph Company for years specified.

	1870.	1880.	1890.	1891.	1892.	1893.	1894.	1895.	1896.
Miles of line.....	54,109	85,645	183,917	187,981	189,576	189,936	190,303	169,714	189,918
Miles of wire.....	112,191	233,534	678,997	715,591	739,105	769,201	790,792	802,651	826,929
Number of offices.....	3,972	9,077	19,382	20,098	20,700	21,078	21,166	21,360	21,725
No. of messages sent, mils.,	9	29	56	59	62	67	59	58	59
Receipts, in million dols....	7	13	22	23	24	25	22	22	23
Expenses, in million dols..	5	7	15	16	16	17	16	16	17
Profits, in million dols.....	2	6	7	7	7	7	6	6	6
Average toll per message..	75.5	38.5	32.4	32.5	31.6	31.2	30.5	30.7	30.9
Average cost per message..	51.2	25.4	22.7	23.2	22.3	22.7	23.3	23.3	24.0

Twenty Years of the Telegraph.

Number of messages, 1870: Russia, 2, 716, 300; Norway, 466,700; Sweden, 590,300; Denmark, 513,623; Germany, 8,207,800; Holland, 1,837,800; Belgium, 1,998,800; France, 5,663,800; Switzerland, 1,629,235; Spain, 1,050,000; Italy, 2,189,000; Austria, 3,388,249; Hungary, 1,489,000; United States, 9,157,646; Great Britain and Ireland, 9,650,000.

Number of messages, 1890: Russia, 9,949,405; Norway, 1,453,932; Sweden, 1,755,000; Denmark, 1,502,965; Germany, 25,847,836; Holland, 4,285,516; Belgium, 5,312,205; France, 28,094,000; Switzerland, 3,695,988; Spain, 4,084,704; Italy, 8,175,870; Austria, 9,081,631; Hungary, 4,464,277; United States, 60,000,000; Great Britain and Ireland, 66,409,000.

Telephones.

The Bell company practically conducts the telephone business of the United States. The aggregate length of wire operated is over 675,400 miles. The number of instruments in the hands of licensees under rental at the beginning of 1897 was 772,627. The number of exchange connections daily in the United States was 2,630,420. or a total per year of about 84,000,000. The average number of daily calls per subscriber is about 8 1-10. The company paid its stockholders in dividends in 1896, \$3,361,233. The capital of the company was \$23,650,000. The gross earnings for 1896 were \$4,327,324; net earnings, \$3,383,580; surplus, \$2,151,011. The total investment in real estate, already in use or to be employed for operation of the telephone business, is upward of \$8,000,000. The Long Distance Telephone Company represents about \$13,000,000 of capital.

Statement of the American Bell Telephone Company on January 1, 1890-'97.

	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.
Exchanges.....	757	774	788	812	838	867	927	967
Branch offices.....	471	467	509	539	571	572	686	832
Miles of wire on poles.....	154,009	171,498	180,139	201,259	214,669	232,008	260,324	286,632
Miles of wire on buildings.....	11,484	13,445	14,954	14,980	16,492	14,525	12,861	12,594
Miles of wire under ground.....	27,117	54,690	70,334	90,216	120,675	148,285	184,515	234,801
Miles of wire submarine.....	603	779	1,029	1,336	1,637	1,856	2,028	2,818
Tot. m. of exchange service wire.	193,213	240,412	266,456	307,791	353,480	396,674	459,728	536,845
Total circuits.....	156,780	173,665	186,462	201,322	205,891	212,074	237,837	264,645
Total employes.....	6,758	7,845	8,376	9,970	10,421	11,094	11,930	14,425
Total subscribers.....	185,003	202,931	216,017	232,140	237,186	243,432	281,695	325,244

The United States still holds the leading place among the great nations of the world in the development and use of the telephone service. It is a noteworthy fact that the number of exchange stations operated by the licensees of this company about equals the aggregate of stations in all the countries of Continental Europe, having more than five times our population, taking as the basis of computation the latest statistics available, derived from official reports and scientific journals.

More than elsewhere the telephone has become a factor in our national life, the medium for conducting important transactions to the economy of time, labor, and expense.

No news is good news,

Insurance, Fire and Life.

Mutual Co-operative and Grange Fire Insurance.

Besides the great joint stock companies, nearly three hundred in number, there are nearly as many mutual fire insurance companies, doing a considerable amount of business when taken together, although operating each upon a much smaller scale usually than the large stock companies. In addition to all these, numerous small mutual companies have been organized by farmers and others in the attempt to secure insurance at actual net cost.

GROWTH OF MUTUAL FARM INSURANCE.

In the northwestern states the farmers' mutual insurance idea has taken a firm hold and it is claimed that the 1000 or more societies in these states are saving their 600,000 members about \$5,000,000 per year. Mutual insurance is equally popular in some of the eastern states. In New York are 112 mutual companies writing 102,641 policies on \$178,468,131. The cost of insuring \$1000 losses and expenses 3 yrs has been \$6; saving for 3 yrs, on a basis of \$7.50 on \$1000 formerly charged by old line companies, \$245,977.

INSURANCE AND THE GRANGE.

The grange has done much to extend the plan of mutual co-operative insurance, having carried on extensive operations in fourteen states. These states, with the risks in part, are as follows: Col 100,000, Ct 2,000,000, Del 692,500, Kan 900,000, Me 4,000,000, Minn 908,000, N H 3,500,000, N J 3,739,000, N Y 100,000,000, O 904,000, Ore 473,500.

HOW MONEY IS SAVED.

Of the 112 mutual companies in New York state, 41 are under the auspices of the grange, and in that state, 38,439 grange members carry insurance amounting to \$100,000,000 at a cost of about \$5.48 for \$1000 of insurance for a term of five years. Ohio's 673 policies represent \$904,000 insurance; in 17 years the company has met 40 losses, levied 14 assessments and the cost has been \$15.60 per \$1000 during that period. Oregon has \$473,500 insurance, 526 policy holders; the cost has been \$2 for 3 years, \$7.50 for 6 years and \$16.65 for 11 years. The Mich and Vt state grange organized a company in February, 1897, and Washington patrons have a strong company. In Pa, patrons undoubtedly make as good a showing as in N Y, but their insurance is widely scattered. In Conn, the grange insurance is carried on at a cost of only 12 per cent of the amount of premiums.

The old line joint stock companies charge about 47 per cent. That is say, for every \$100 received for premiums they retain for expenses and profits nearly \$47, leaving about \$53 to be paid out for actual losses. These stock companies charge from \$2 to \$2.50 per \$1000 per year, while the farm mutuals insure at a cost of \$0.71 to \$1.58 per \$1000 per year, averaging about one-half the cost of joint stock companies.

THE METHOD OF OPERATION of the farm mutuals is very simple. Members are insured for stated periods, paying in advance only a small fee for printing and incidental expenses, giving also a note without interest for a certain per cent of the amount of the policy. When a fire

Once a knave, always a knave.

occurs, the cost is assessed upon the note-givers in proportion to the face value. Members thus obtain insurance for the amount of the actual losses by fire, with the addition of a small per cent to pay for the actual work and expenses of their officers. A slight modification of this plan is to make the assessments sufficiently large to heap up a reserve fund, which secures prompt payment of losses and greater stability.

Cost Per Year of \$1,000 of Insurance.

	<i>In Stock Companies.</i>	<i>In Farm Mutuals.</i>
Maine		
Connecticut..		
New York....		
Pennsylvan'a		
Ohio.....		
Illinois		
Michigan.....		
Iowa.....		
Wisconsin....		
Minnesota ...		
Average		

DANGEROUS TENDENCIES.

Farm mutuals have been in operation a long term of years in some of the states and from the mistakes and failures of certain of the companies, the officers and members have learned the need to avoid various errors. Over-valuation of insured property is always a temptation to fraud and crime. Policies should be limited to two-thirds of the property value. Property to be insured must be care-

The shortest answer is doing.

fully inspected to settle its real value and to avoid bad risks. Officers and adjusters of losses must be practical and businesslike. Too large a sum should not be insured when liable to be lost by a single fire. Losses should not be made payable to the person holding a mortgage on the property. Old buildings become less valuable year by year and less should be risked upon them. The above includes most of the evils which have caused trouble to mutual insurance associations.

WHEN ORGANIZING a farmers' mutual company, the promoters should first become masters of the subject by study of the state insurance laws and reports, which can be obtained of state insurance commissioners. Copies of reports, by-laws and policy blanks should be obtained of successful mutual companies, of which there are several in most of the states.*

After a sufficient number of persons have become interested in mutual insurance, a committee should be appointed at a meeting of those concerned in the project and this committee should obtain directions how to proceed, from the state insurance officials. The company must be carefully organized under due legal forms and a lawyer should be employed to assist and advise. In regard to details, much help can be obtained from reports and documents of other societies of the kind.

Causes of Fires.*

	1896.		1895.	
	Percent of whole No.	Percent of whole amt of loss.	Percent of whole No. of fires.	Percent of whole amt of loss.
Causes peculiar to premises <i>a</i>	16.73	17.96	19.68	21.66
Causes not peculiar to premises <i>b</i>	16.32	9.78	19.15	11.73
Outside causes <i>c</i> ...	33.01	28.98	34.99	29.79
Crime or misch'f <i>d</i>	7.36	7.99	8.32	10.12
Unknown	26.58	35.29	17.86	26.70

* Total number of fires in 1896 was 61,133; number for 1895 was 53,961.

a Causes peculiar to premises include defective flues and smokestacks, stoves, stovepipes, spontaneous combustion, furnaces, defective heating apparatus, explosions, overheated ovens and kilns, electric wires, etc.

b Causes not peculiar to premises include locomotive or other sparks, lamp accidents, matches, candles, gas jets, accidents, carelessness, hot ashes, use of tobacco, etc.

c Outside causes include exposure to burning property, lightning, forest fires, bonfires, fireworks.

d Crime or mischief includes incendiarism, tramps, burglars, drunken men, mischievous children.

Proportion of Different Classes of Property Destroyed by Fire.

	No. of fires		Per cent.	
	1896.	1895.	1895.	1896.
Dwellings, etc.....	26,307	22,711	42.09	43.03
Stores, offices, etc..	14,840	12,543	23.24	24.27
Livery stables, barns, etc.....	9,107	8,142	15.09	14.95
Manf. estates.....	4,952	5,231	9.69	8.10
Hotels, clubs, restaurants.....	1,429	1,332	2.47	2.34
Warehouses, storehouses.....	781	593	1.10	1.28
Railroad property.....	1,022	907	1.68	1.67
Theaters, halls, etc.	653	503	.93	1.07
Churches.....	367	340	.63	.60
Colleges, schools, convents.....	413	302	.56	.68
Goods in transit....	37	84	.16	.06
Public buildings.....	109	145	.27	.18
Hospitals, asylums, etc.....	94	70	.13	.10
Miscellaneous.....	1,022	1,058	1.96	1.67
Total burned...	61,133	53,961	100.00	100.00

Tornado mutual insurance is practiced in some of the central states. The Iowa Mutual tornado association wrote \$65,000,000 of risks since the organization thirteen years ago. In 1896 it wrote 13,648,514 risks. They have amounted to only five mills on the dollar for the entire thirteen years.

The largest fire during 1896 was at Cripple Creek, Colorado, the whole town having been destroyed. Loss of about two millions of dollars was inflicted.

*Reports of the State Central organization of Co-operative Insurance companies of New York can be had of the secretary at Jamestown, N. Y. The State Insurance Dept. at Lansing, Mich., has published a special report on farm mutuals. The mutual insurance laws of Michigan are models of the kind. Pratt's System of Classifications of Risks is of value to intending promoters and includes much valuable information, published by George L. Pratt, Ridgeway, N. Y.

Great care must be exercised in the selection of officers, especially the secretary, who is the most responsible person in the organization. Management should be clear and open, allowing every member opportunity to learn just how the business is being conducted. Cash payments should be the rule. Business methods and intelligent, mutual interest are the only means of co-operative success.

Risks on Farm Buildings.

In regard to farm property the popular impression is to the effect that such property is particularly safe and some farmers do not insure their property at all. The fact is, however, that the risk of fire is great, and many insurance companies report an actual loss in their transactions in farm districts. Fires often start in farmhouses, a result of wood fires in old or defective chimneys, and barns are often destroyed by lantern explosions, lighting or the carelessness of tramps and hired men. Fires in town and city property are seldom due to such causes. Moreover, the loss on farm property is generally complete because of the distance from fire apparatus. So great is the risk attending insurance of farm property that some companies so far as possible avoid this class of business.

CAUSES OF FIRES.

The most common cause of fire in the United States in 1896 was defective flues, which gave rise to 4825 fires. Incendiary fires rank next in number, 4477. Careless use of matches caused 2719 fires, lamp explosions gave rise to 1752, while other accidents to lamps and lanterns caused 1058. Lighting accidents occasioned 1738 fires. Sparks set 2645 conflagrations and 1909 were due to stoves. The remaining fires were owing to a variety of causes. For instance, fires to the number of 442 were ascribed to tramps.

DECREASING THE FIRE LOSS.

The fire loss during 1896, as will be noted on consulting the accompanying tables, was much less than for any of the preceding years since 1890. The reports of loss for 1897 are not returned by the companies until after this volume is published, but a prominent insurance man asserts that a similar decrease will be noted for 1897. He explains the decrease as a result of the enforcement of the schedule system of mercantile insurance, by which plan holders of business property pay for insurance according to the degree in which the premises are made and kept in a fire-proof condition. The adoption of the schedule system by leading companies has induced many owners to improve the fire-resisting condition of their property and so to obtain lower rates of insurance.

Twenty Years' Losses by Fire in the United States.

Given in round numbers by millions.

YEARS.	Tot. prop-erty loss.	Tot. insur-ance loss.	YEARS.	Tot. prop-erty loss.	Tot. insur-ance loss.
1877.....	\$68	\$37	1888.....	\$110	\$63
1878.....	64	36	1889.....	128	73
1879.....	77	44	1890.....	108	65
1880.....	74	42	1891.....	143	90
1881.....	81	44	1892.....	151	93
1882.....	84	48	1893.....	167	105
1883.....	100	54	1894.....	140	89
1884.....	110	60	1895.....	142	84
1885.....	102	57	1896.....	118	73
1886.....	104	60	Total 22 years....	\$2,337	\$1,377
1887.....	120	69			

Losses by Fire for 21 Years, 1876-'96.

	In thousands (last three figures and cents omitted).					
	Property loss for 21 years, 1876-1896.	Loss to Ins. Co's for 21 yrs 1876-1896.	Property loss in 1896.	Premium receipts.	Loss to Ins. Co's in 1896.	No. risks burned in 1896.
Alabama...	\$21,156	\$10,720	\$1,021	\$1,107	\$537	709
Arkansas..	21,783	10,079	1,306	717	745	487
Arizona....	5,096	1,947	208	120	86	114
California...	95,106	47,500	4,681	3,817	2,597	2,988
Colorado...	20,424	9,489	2,951	1,514	995	1,235
Connectic't	35,515	23,023	2,038	2,683	1,485	1,068
Delaware...	6,445	3,855	438	191	288	177
D. of Colum	5,007	2,596	426	499	283	466
Florida.....	17,561	7,392	655	613	217	586
Georgia....	41,813	22,020	3,033	2,033	1,700	1,694
Idaho	4,145	1,544	484	143	194	169
Illinois.....	132,855	87,347	7,120	12,674	5,286	3,928
Indiana....	74,250	36,434	3,809	3,506	2,227	1,736
Ind. Ter'ry.	3,023	1,207	254	119	82	78
Iowa.....	48,452	26,486	2,976	4,163	1,627	1,251
Kansas.....	28,806	14,332	1,384	1,661	851	621
Kentucky..	47,990	27,272	3,244	2,513	2,111	1,217
Louisiana..	40,622	26,106	2,248	2,604	1,462	1,027
Maine.....	32,626	18,538	1,593	1,591	898	1,076
Maryland..	32,402	21,855	1,362	1,798	908	993
Massa'setts	131,177	95,866	5,931	7,887	4,808	3,080
Michigan..	90,320	47,287	5,925	4,262	3,580	2,540
Minnesota..	62,825	38,189	2,906	3,925	1,951	1,144
Mississippi	20,382	10,082	1,155	886	585	479
Missouri...	83,969	54,390	3,324	4,695	2,218	2,358
Montana...	7,807	3,197	680	669	323	356
Nebraska..	20,146	11,318	1,166	1,377	683	709
Nevada.....	7,348	2,493	62	66	25	59
N. Carolina	20,359	9,553	1,281	866	586	780
N. Dakota..	40,129	5,107	623	499	373	262
N. Hamp...	19,882	11,252	931	1,163	582	484
New Jersey	64,988	39,053	4,199	4,131	2,845	2,056
N. Mexico...	3,895	1,466	181	154	52	80
New York...	333,749	232,287	13,745	23,408	10,333	8,099
Ohio.....	126,932	73,091	5,751	7,371	3,429	2,366
Oregon.....	18,916	8,977	1,280	848	535	675
Oklahoma..	551	136	309	76	94	135
Penn.....	183,294	107,334	10,207	10,377	6,547	4,816
R. Island...	19,500	1,442	935	956	660	621
S. Carolina.	17,820	10,029	747	649	381	494
S. Dakota..	11,287	4,537	676	361	323	315
Tennessee..	36,559	20,400	2,160	1,964	1,206	1,160
Texas	77,056	40,898	5,050	3,575	2,876	2,079
Utah	5,749	2,381	309	278	159	202
Vermont...	16,577	9,393	671	789	397	403
Virginia....	28,427	16,350	2,015	1,565	1,097	1,155
Washing'tn	33,806	14,980	1,225	990	473	725
W. Virginia	11,940	5,556	978	461	412	435
Wisconsin..	79,170	42,684	2,988	4,320	1,741	1,338
Wyoming...	2,475	759	73	121	23	108
Totals...	\$2,260,135	\$1,332,852	\$118,737	\$132,778	\$73,903	61,133

Here is the obituary notice of one farm mutual company showing in a graphic manner just how a company should not be run: "The officers were men of no practical experience. The first epidemic of fires in the village broke up the company. It insured everything and had quite a uniform rate. Its management showed an entire lack of knowledge of the business. Its records were decidedly defective. It cost as much as stock insurance and wasn't half as safe."

The life insurance business of the United States exceeds that of Great Britain by some \$20,000,000.

A bird in the hand is worth two in the bush.

Fire Loss by Months.

The statement of fire losses in the United States by months seems to indicate a lighter loss during the months when the weather is such that stoves and lamps are not so much used. The heavier loss in July is, no doubt, partly owing to the usual Fourth of July fires.

MONTHS.	Total loss of property yrs. 1875-'96. Mils.	Number of fires.	MONTHS.	Total loss of property yrs. 1875-'96. Mils.	Number of fires.
January,	\$215	35,273	August,	\$189	34,932
February,	187	31,252	September,	175	35,511
March,	201	33,927	October,	201	37,473
April,	199	34,075	November,	203	35,870
May,	190	31,277	December,	214	38,286
June,	162	28,465	Total,	\$2,338	411,843
July,	200	37,492			

Fire Insurance in the United States.

AGGREGATE OF ALL THE COMPANIES.
In thousands of dollars.

	1895	1896	Increase or decrease in 1896.
Cash capital.....	\$53,120	\$56,556	\$3,436
Assets (including contingent of mutual Co's).....	278,792	293,600	14,808
Liabilities.....	130,558	130,414	144
Surplus.....	123,518	139,833	16,315
Income.....	145,731	146,381	650
Expenditures.....	131,060	129,104	1,956
Fire risks written.....	14,593,403	14,780,928	187,525
Fire premiums received (net).....	124,400	137,712	13,312
Marine risks written.....	2,789,594	2,636,700	152,894
Marine premiums received (net).....	10,844	12,389	1,545
Fire losses paid.....	67,842	65,066	2,776
Marine losses paid.....	7,848	7,377	471
Fire losses incurred.....	66,789	62,914	3,875
Marine losses incurred.....	8,426	6,740	1,686
Fire risks outstanding.....	18,462,445	18,998,232	535,787
Marine risks outstanding.....	274,630	282,822	8,192
Expenses.....	45,552	46,685	1,133
Cash dividends declared.....	5,253	5,867	614

Something About Life Insurance.

We are firm believers in life insurance. There are various well established and strong insurance companies that are as reliable and as safe as any banking institution. They issue a variety of policies, the simple straight life, endowment, bond, etc. In most of the states, the law protects one who is so unfortunate as to be obliged to discontinue his policy, by compelling the company to issue a paid-up policy for the amount that the premiums he has paid would cover. Formerly these lapses were so much net profit to the companies and caused enormous losses to the insurer. There is a great contest between the so-called stock and mutual life insurance companies on the one hand and the various forms of assessment insurance companies on the other. The latter have been unfortunate of late in the failure of the Massachusetts Benefit and some other assessment concerns, while the history of the old line companies is blackened by many a wreck. Given a well managed and reliable life insurance institution, and a policy in it for a moderate amount is comparatively inexpensive, and in event of death affords an immediate income to the family that is usually a great convenience and of extraordinary value at such a time. Many farmers keep

When the cat's away the mice will play.

their buildings insured against fire but carry no insurance on their lives, and if stricken down in early manhood too often leave their family in reduced circumstances. A life insurance policy would guard against this. We regard it as a much wiser and safer investment than many of the more or less hazardous schemes that are offered to farmers. A very successful business man of our acquaintance, who conducts large financial transactions, makes it a rule when he incurs an additional debt or risk to take out a straight life insurance policy for an equal amount. Then if he should die before the transaction is completed, the extra insurance will offset the increased obligation. If he lives and the transaction proves profitable, the insurance is not renewed, but it is kept in force as long as the scheme is in doubt. This has a good effect on the man's credit also. In the case of a farmer who contracts a mortgage on his farm, the application of the insurance idea is evident. In order to buy a farm or home, to obtain more land or to make necessary improvements, a mortgage is given, wisely in many cases. The farmer can save money, and, by close economy he can see his way clear to pay off the debt, if he lives. But what if he does not live? That is the danger. A mortgaged home is of little use in keeping a family from distress and want after the breadwinner is gone. Because of the uncertainties of life a mortgage must necessarily be a source of uneasiness to a man who wishes to secure the welfare of his family. Here the insurance company steps in and for a fixed sum per year guarantees a sum sufficient to meet the mortgage and agrees to pay over the money whether the mortgage giver lives one year or fifty. Had every owner of a mortgaged home taken out a policy for an amount equal to the mortgage, many a family would have been saved from want and distress and many a mortgage now drawing interest would have been cancelled, and the home saved.

Insurance protects the home and farm as well as the farmer. To illustrate: A farmer aged 30 years buys a farm and gives \$1000 mortgage, at the same time taking out a \$1000 thirty year endowment insurance policy. He pays interest on the mortgage, pays \$30 to \$33 annual premiums on the policy, which premium is steadily reduced by dividends. Supposing he died within a few years, the insurance company pays the \$1000 and the home is left clear to the family. If on the other hand, he lives, but is unable to more than pay interest and premiums, the policy will be paid at the end of thirty years, leaving the owner to enjoy his old age free from debt. If the money is not needed to pay debts, it will nevertheless afford a much-needed help in old age. Thus life insurance protects both the farmer and his family, secures the homestead and provides for a prosperous and comfortable old age. It is stated on good authority that forty per cent of the life insurance policies in Indiana are held by farmers.

THE FOUNDATION OF LIFE INSURANCE.

Taking any large number of persons of the same age, it is uncertain which ones will die in any year, but it has been found that the average number dying yearly will be quite uniform. This fact is that which makes it possible to establish a uniform yearly charge for insurance, and to pay a definite sum for each life insured. By paying in a stated sum at regular periods, sufficient funds can be accumulated

yearly to meet the average yearly loss by death and to pay the expenses and profits of the managers.

EXPECTATION OF LIFE.

The following table shows the number of deaths to be expected annually among 100,000 people, starting at age 10. Our table takes them up at age 25, which is as early as most insurance policies begin:

AGE.	Number then living.	Deaths each year.	Ratio of deaths to number living.	Expectation of life.	AGE.	Number then living.	Deaths each year.	Ratio of deaths to number living.	Expectation of life.
25	89,032	718	.806	38.81	65	49,341	1,980	4.013	11.10
30	85,441	720	.843	35.33	70	38,569	2,391	6.199	8.48
35	81,822	732	.895	31.78	75	26,237	2,476	9.437	6.27
40	78,106	765	.979	28.18	80	14,474	2,091	14.447	4.39
45	74,173	828	1.116	24.54	85	5,485	1,292	23.555	2.77
50	69,804	962	1.378	20.91	90	847	385	45.454	1.42
55	64,563	1,199	1.857	17.40	95	3	3	100.	.50
60	57,917	1,546	2.669	14.10					

This table is fundamental to the whole scheme of life insurance, and rates are based upon average rates of deaths and the average expected duration of life, as above outlined. It will be noted that the ratio of deaths increases as the age advances and that the rate of premium to be paid would naturally increase also.

Natural premium



Level premium



LEVYING THE COST.

Some companies and insurance societies levy the cost upon this principle, but the stock insurance companies, estimating according to the average duration of life, average the premium at a fixed sum yearly for the whole period.

THE INTEREST PAYS THE BILLS.

In order to enable every person or his heirs to receive a given sum, it is evident that each must pay in a sum equal to that which each is to receive, also enough to cover loss by early deaths and to pay expenses of management. Notwithstanding this evident fact, a person insured and paying for the full term of the policy actually pays in less than the face value of his policy. This apparent magic is effected by the rapid increase of money at compound interest to which outside money is added yearly.

The Presbyterian Ministers' Fund, organized in 1759, and the Baltimore life, organized in 1831, were the pioneers in life insurance in the United States. Life insurance, as it is now conducted, on the mutual plan, originated in New York in 1843.

In 1897 there were three insurance companies, with headquarters in New York, whose combined assets amounted to more than \$500,000,000.

Continual dropping wears away stone.

Life Insurance in America.

AGGREGATE RESULTS OF UNITED STATES COMPANIES SINCE ORGANIZATION.

	Y'rs in bus- iness.	No. of pol- icies in force, Jan. 1, 1897.	Am't. in force Jan. 1, '97 In mil'ns	Assets Jan. 1, '97 In mil'ns	Surplus Jan. 1, '97 In mil'ns	Total re- ceipts in millions since or- ganiza'n	Total paym'ts in mil'ns to policy holders since or- ganiza'n
Mutual of New York.	54	326,775	\$917.9	\$234.7	\$29.7	\$779.4	\$437.0
New England.....	53	35,919	100.0	25.9	2.1	107.1	66.6
New York Life.....	52	299,785	826.8	187.2	26.7	513.1	235.3
Mutual Benefit.....	52	87,979	224.5	60.7	4.3	239.9	151.9
State Mutual.....	50	21,876	62.0	12.2	1.3	30.7	14.0
Connecticut Mutual..	50	66,441	157.0	62.9	8.6	276.9	182.4
Pennsylvania Mutual	50	54,066	134.6	29.4	3.4	85.5	42.2
Union Mutual.....	47	22,439	38.0	7.0	.5	48.1	29.3
United States.....	46	17,515	37.8	7.5	.6	37.8	20.3
Ætna Life.....	46	87,658	145.6	45.5	6.7	168.7	99.2
Manhattan.....	46	24,954	57.7	14.4	.9	68.2	40.7
National of Vermont.	46	34,352	72.5	13.5	1.6	33.1	13.4
Phoenix Mutual.....	46	25,981	42.0	10.6	.6	61.0	37.0
Mass. Mutual.....	45	40,926	102.9	18.5	1.3	61.0	30.3
Berkshire.....	45	16,706	43.3	7.5	.7	28.6	16.1
Covenant Mutual....	44	3,297	6.0	.4	.04	3.4	2.0
German Mutual.....	39	549	1.0	.5	.1	1.5	.7
Northwestern.....	38	165,415	384.0	92.6	19.5	207.0	84.3
Equitable of N. Y....	37	293,719	915.0	215.5	42.1	570.9	253.5
Home Life.....	37	21,646	42.0	9.4	1.0	36.1	18.8
Washington.....	37	25,388	48.8	13.9	.5	53.3	28.9
Germania.....	36	{ 75,054	n.6	22.4	2.1	71.0	36.1
		{ 014,684	070.0				
John Hancock e.....	34	{ n835,351	n105.6	8.8	.6	44.8	19.2
		{ 014,684	029.5				
Brooklyn.....	32	4,129	6.0	1.7	.1	13.0	7.7
Provident L. & T.....	32	36,291	113.0	31.6	3.8	65.0	25.6
Connecticut Gen'l....	31	8,880	11.8	2.9	.5	9.4	4.1
Maryland.....	31	3,142	6.5	1.8	.3	5.9	2.7
Mutual of Kentucky..	31	6,883	10.9	2.7	.2	9.4	4.8
Travelers'.....	30	32,945	88.0	t20.9	t3.0	37.2	11.9
Metropolitan e.....	30	{ n3,643,569	n454.0	30.6	5.0	154.3	57.8
		{ 030,835	033.1				
Union Central.....	30	52,955	93.9	16.3	2.0	38.4	12.1
Equitable of Iowa....	30	5,801	8.5	1.4	.3	3.6	1.2
Michigan Mutual.....	29	14,895	27.9	5.3	.4	16.4	6.4
Pacific Mutual.....	29	{ n11,539	n2.4	t3.1	t.2	13.1	6.7
		{ 06,898	015.3				
Vermont Life.....	28	2,167	4.3	.5	.1	1.7	.6
Presbyterian Min*....	21	2,848	4.0	.7	.2	1.3	.5
Prudential e.....	21	{ n2,437,251	n279.0	19.5	4.0	86.7	26.1
		{ 035,807	041.0				
Provident Savings...	21	26,158	80.2	2.0	.5	19.2	12.3
Iowa Life*.....	11	5,860	10.1	.4	.1	1.8	.7
Royal Union.....	11	1,930	3.7	.2	.01	.4	.05
Bankers.....	10	1,163	2.0	.2	.1	.4	.07
West & Southern*....	9	n62,747	n5.7	.2	.08	1.4	.3
Register S. & A.....	8	569	.8	.02	.01	.09	.01
Provident Life*.....	8	n8,603	.9	.04	.03	.2	.03
Sun Life*.....	6	n92,887	9.0	.2	.07	1.4	.3
Union Life*.....	6	1,456	2.9	.3	.1	.5	.1
Kansas Mutual*.....	6	4,929	8.8	.3	.1	1.1	.5
Aggregate (see note)		9,129,374	5,911.1	1,245.5	177.9	4,099.4	2,043.5

NOTE.—Companies, six in number, which have been in existence not more than five years, are omitted from this table, but in the aggregate these six companies are included. * Partly estimated. e Includes industrial insurance. n Industrial business. o Ordinary business. t Including accident branch.

He that goes softly goes safely.

Amount of One Dollar Per Annum.

End of years.	4%	4½%	5%
5.....	\$5.6330	\$5.7169	\$5.8019
10.....	12.4864	12.8412	13.2068
15.....	20.8245	21.7193	22.6575
20.....	30.9692	32.7831	34.7193
25.....	43.3117	46.5706	50.1135
30.....	58.3283	63.7524	69.7608
35.....	76.5983	85.1640	94.8363
40.....	98.8265	111.8467	126.8398
45.....	125.8706	145.0982	167.6852
50.....	158.7738	186.5357	219.8154

Thus a person who has paid a company \$1 per year for thirty years has really paid not thirty dollars but over \$58. This interest gain enables the company to pay expenses and early death losses, to make a profit and to even return a portion of the premium in the form of dividend. In practice then, the real cost of insurance is the use of the money paid for premium.

Four Years of American Life Insurance.

Statement in table form of the yearly aggregates from 1893 to 1896, of all the active life insurance companies of the United States.

Values expressed in millions of dollars.

	1896	1895	1894	1893
Number of companies.....	57	56	56	56
Total premium income.....	228.0	219.7	209.6	197.0
Total interest and other income.....	55.7	52.2	52.3	44.7
Total income.....	283.7	271.9	261.9	241.7
Paid for death losses.....	77.3	73.1	69.3	66.6
Paid for matured endowments.....	12.3	10.8	8.3	8.5
Paid for surren'd, lapsed and purchased policies.....	26.7	23.3	23.6	20.2
Dividends to policy holders.....	17.2	15.4	14.8	15.1
Total payments to policy holders.....	136.2	125.1	118.4	112.6
Total expenses of management.....	66.4	64.6	63.8	57.8
Total expenditures.....	202.5	189.8	182.3	170.4
Excess of income over expenses.....	81.2	82.1	79.7	71.3
Total admitted assets.....	1,243.6	1,160.0	1,073.0	987.9
Total liabilities.....	1,066.5	997.7	930.9	868.6
Surplus to policy holders.....	177.0	162.2	142.2	119.3
New business written.....	827.9	894.6	1,014.6	1,090.0
Total insurance in force.....	5,056.0	4,917.7	4,763.0	4,629.0

Forms of Policies.

Besides the ordinary life insurance plan there are various forms of policies, of which the most popular are on the quick payment life and the endowment policies. Under the quick payment plan, the insurer pays a premium for ten, fifteen or twenty years, as the case may be, and his policy is then paid up. He has nothing more to pay. In the event of his death occurring any time after the first premium is paid, the amount of his policy is paid to his heirs, or as he may direct. After the policy is paid up, if it is a participating one, it continues to receive profits, which either take the form of additional insurance or are paid out in cash dividends.

Under the endowment plan the insurer pays the premium for ten, fifteen, twenty or twenty-five years, according to the term of his policy, and at the end of that term the amount of his policy becomes payable. Should his death occur at any time after insuring, the amount is paid to his heirs just the same as an ordinary life policy. The advantage of an arrangement of this kind is that a man may make provision for his old age. Paying a slightly higher premium, he makes sure of a sum coming to him when perhaps he is unfitted for business. At the same time his life is insured should he die previously.

Take care of the pence, the pounds will take care of themselves

American Life Insurance in Foreign Countries.

Showing the business of four leading American companies in countries outside of the United States and Canada for year 1896.

All given in Thousands.

	No. of policies in force.	Amount of Insur- ance in force.	Premium receipts in 1896.
Europe.....	144.3	407,504	16,864
Asia	3.8	9,119	551
Africa.....	5.3	17,281	569.5
Australia	13.0	34,446	1,408
South America.....	23.4	115,468	4,709.5
Central America.....	2.3	10,397	486.4
West Indies.....	4.3	16,410	641.4
Mexico.....	11.6	22,285	1,222.8
Other Countries and Islands	1.3	5,668	237
Totals, 1896.....	209.3	638,478	26,690
1895.....	200.3	639,743	26,982
1889.....	105.2	384,294	16,500

The Insurance Company of North America, still doing business, was organized at Philadelphia in 1794. When the famous fire of 1835 occurred in New York, thirty-eight of the forty companies doing business in that city failed. On the \$118,000,000 in property destroyed in the Chicago fire of 1871, \$92,000,000 was the amount of insurance. More than 100 companies were compelled to suspend payment after the fire.

Earthly Providence.

In closing an able address at an insurance men's gathering recently in St Louis, Mr Holger de Roode, of Chicago, quoted these admirable lines from an epic by the late Charles C. Hine:

"Oh, blessed insurance! What pervasive reach
Hath thy rich hand? What graphic stimulant
The lessons of pervisions wise, to teach,
Doth thy success supply. How provident;
Meeting the wants of man in every zone,
A near, afar; consorted or alone;
Afield, afloat; anon alive or dead.
With sleepless vigil and with tireless tread,
Insurance hastens on its wide patrol,
And nulls vicissitudes from pole to pole."

The Rev Henry M. McCracken, chancellor of the university of New York, discoursed not long ago on "Education as related to life insurance," and began with the proposition that everything that advanced and developed was in the nature of insuring better conditions, and traced the analogy from the savage to the man under high civilization. What was wanted was insurance of success in the pursuit of happiness. Teachers, preachers, lawyers, poets and painters all contributed to this end. The chancellor spoke of the happiness given by the certain feeling that the future is secured against poverty. An elaborate civilization was required for life insurance. Turkey and Cuba had no life insurance companies. The United States is rapidly approaching the position of being the most highly insured country in the world.

One to-day is worth two to-morrows.

EDUCATION.

Facts About Our Schools.

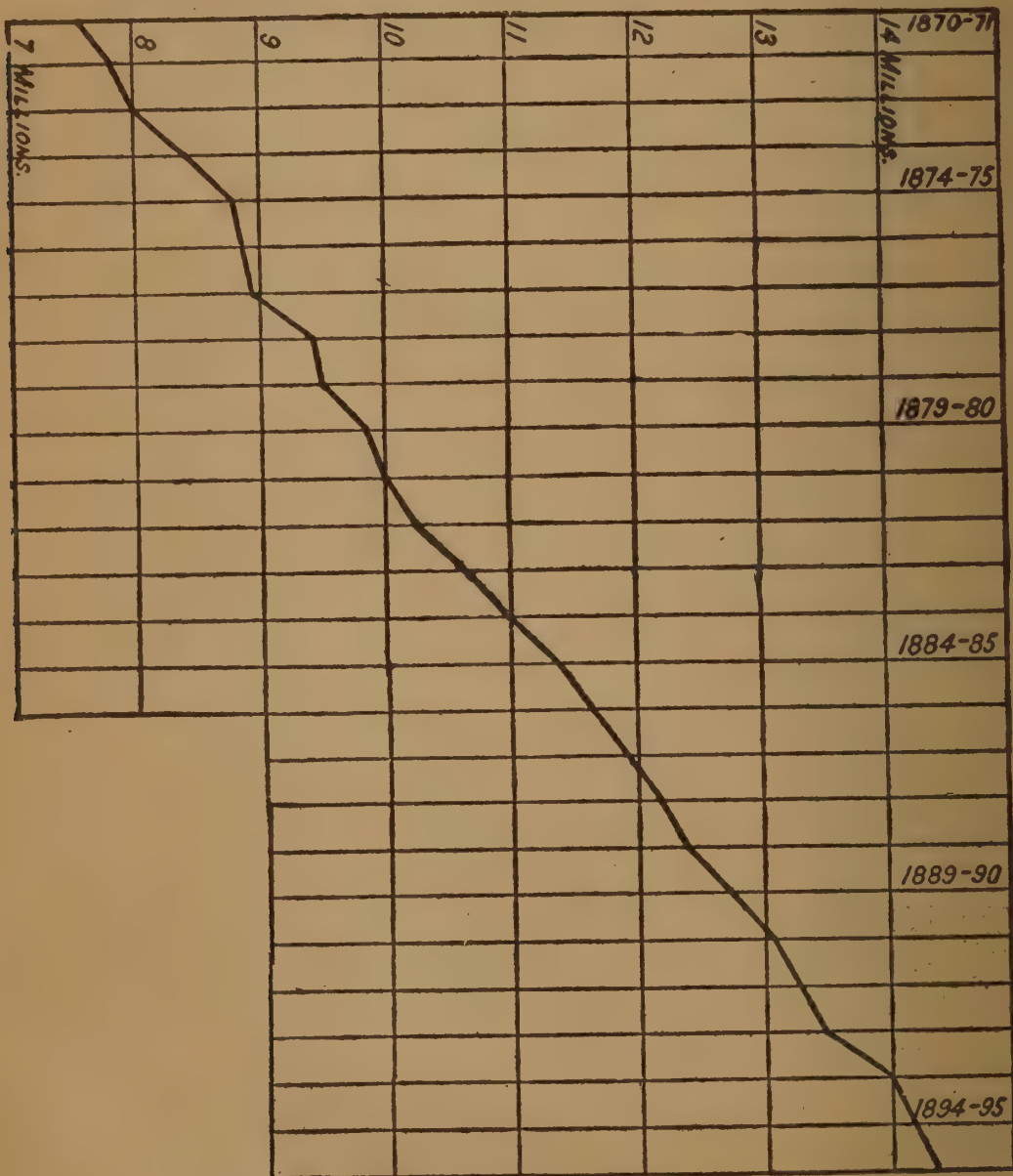
The schools and colleges of the United States, public and private, included in 1896 pupils to the number of 15,997,197. Of these about one and one-half millions were in private schools. In addition there were 418,000 pupils in evening schools and other special institutions, making a grand total of 16,415,197. The following tables show the main facts for the whole country, about our public and private common schools. The tables are compiled from information received from the official sources:

Facts about our Common Schools.

	1870-71.	1893-94.	1894-95.	1895-96.
<i>Pupils and Terms.</i>				
Total population (estimated).....	39,500,500	68,064,250	68,748,950	70,595,321
Number of persons 5 to 18 years of age (estimated).....	12,305,600	20,137,521	20,328,147	20,865,377
Number of different pupils enrolled on the school registers.....	7,561,582	13,995,357	14,201,752	14,379,078
Per cent of total population enrolled.....	19.14	20.56	20.65	20.37
Per cent of persons 5 to 18 years of age enrolled.....	61.45	69.50	69.85	68.93
Average daily attendance.....	4,545,317	9,263,350	9,387,507	9,747,015
Ratio of same to enrollment.....	60.1	66.2	66.1	67.8
Average length of school term (days).....	132.1	139.5	141.4	140.5
Aggregate number of days attended..	600,432,802	1,292,751,289	1,327,953,863	1,369,882,914
Average number for each person 5 to 18 years of age.....	48.7	64.2	65.3	65.7
Av. number for each pupil enrolled..	79.4	92.4	93.5	95.3
<i>Teachers and Buildings.</i>				
Male teachers.....	90,293	125,402	128,376	130,366
Female teachers.....	129,932	263,547	267,951	269,959
Whole number of teachers.....	220,225	388,949	396,327	400,325
Per cent of male teachers.....	41	32.2	32.4	32.6
Average monthly wages of teachers..				
Males.....		\$44.76	\$46.82	\$47.37
Females.....		\$37.48	\$39.41	\$40.24
Number of schoolhouses.....	132,119	238,423	237,416	240,968
Value of all school property.....	\$143,818,703	\$428,238,256	\$439,071,690	\$455,948,164
<i>Cost of the Schools.</i>				
Receipts:				
Income from permanent funds.....		\$8,440,959	\$8,336,612	\$7,646,152
From State taxes.....		32,749,646	33,252,941	35,280,153
From local taxes.....		112,785,117	119,019,984	123,219,526
From all other sources.....		16,428,458	16,988,154	15,248,597
Total revenues.....		170,404,180	177,597,691	181,394,428
Expenditures:				
For sites, buildings, furniture, libraries and apparatus.....		\$30,007,688	\$31,900,525	\$32,408,270
For salaries of teachers and superintendents.....	\$42,580,853	109,202,405	113,664,874	116,377,778
For all other purposes.....		33,292,750	32,650,157	35,667,732
Total expenditures.....	69,107,612	172,502,843	178,215,556	184,453,780
Expenditure per capita of population.....	1.75	2.53	2.59	2.61
Total expenditure per pupil....	15.20	18.62	18.98	18.92
Average expenditure per day for each pupil (in cents).....	11.5	13.3	13.4	13.5

What's yours is mine and what's mine's my ain.

Ohio in 1896 created a pension fund for teachers in certain cities by providing for a deduction from their salaries, and placing the fund thus created under the control of seven trustees, to wit, the superintendent of school, three elected by the teachers, and three by the board of education.



Number of Pupils of Common Schools, 1870-1895.

The Peabody education fund, established in 1869, devoted \$3,500,000 to education in the southern states. The John F. Slater fund devoted \$1,000,000 especially for the education of the negro population. The income of these funds is devoted to training of teachers and partial support of various schools and colleges.

Slow help is no help.

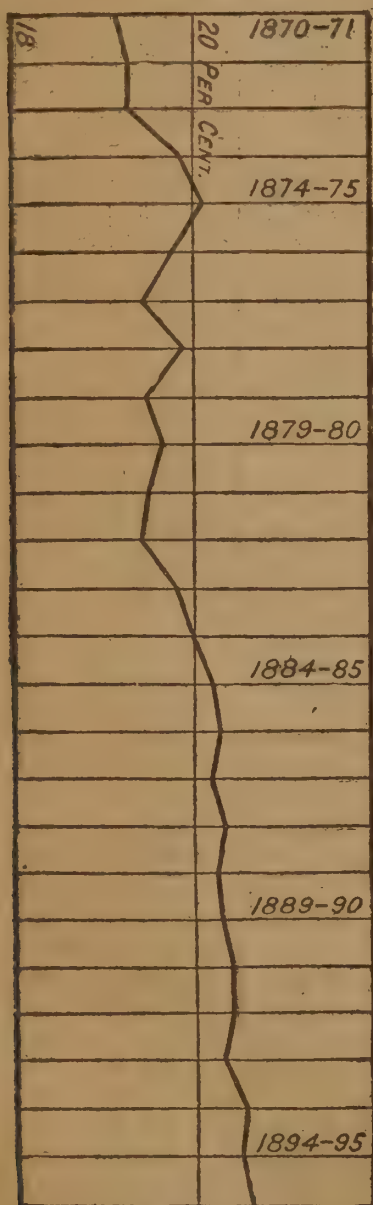
Finances of Common Schools.

STATE OR TERRITORY.	Average monthly salaries of teachers.		No. of build'gs used as school houses.	Given in mil'ns and tenths.		
	Males.	Females.		Estim'ed val. of all school property	Total revenue.	Total expenditure.
United States.....	\$47.37	\$40.24	240,968	\$455.9	\$181.4	\$184.5
North Atlantic Division.....	61.18	44.81	43,548	178.6	68.8	67.7
South Atlantic Division.....	33.15	30.66	35,185	19.3	11.0	11.1
South Central Division.....	40.84	34.78	47,366	20.6	13.4	13.3
North Central Division.....	47.53	38.23	102,350	200.1	75.2	78.9
Western Division.....	60.03	52.87	12,519	37.3	13.0	13.5
North Atlantic Division:						
Maine.....	43.89	31.94	4,196	3.7	1.6	1.6
New Hampshire (1893-94).....	49.78	27.36	1,998	3.0	0.9	0.9
Vermont.....	38.68	26.72	2,256	1.6	1.0	1.0
Massachusetts.....	136.03	50.30	<i>a</i> 4,539	36.8	11.8	11.8
Rhode Island.....	100.53	50.46	516	4.1	1.3	1.6
Connecticut.....	84.65	42.34	1,633	8.8	2.5	2.8
New York.....	<i>b</i> 72.67	<i>b</i> 52.17	12,027	60.3	23.3	23.2
New Jersey.....	83.03	48.13	1,763	11.9	5.0	5.0
Pennsylvania.....	44.78	38.28	14,620	48.1	21.2	19.6
South Atlantic Division:						
Delaware (1891-92).....	<i>b</i> 36.60	<i>b</i> 34.08	<i>a</i> 497	0.9	0.3	0.3
Maryland.....	<i>b c</i> 48.00	<i>b c</i> 40.40	<i>a</i> 2,389	<i>b</i> 4.0	2.2	2.5
District of Columbia.....	<i>b c</i> 111.62	<i>b c</i> 69.00	114	3.3	1.0	1.0
Virginia.....	40.93	26.91	6,977	3.0	1.8	1.8
West Virginia.....	.....	.....	5,475	3.2	1.8	1.8
North Carolina.....	25.38	21.40	6,603	1.0	0.8	0.8
South Carolina.....	23.44	22.41	4,140	0.7	0.6	0.5
Georgia.....	.....	.....	6,752	2.5	1.7	1.7
Florida.....	37.51	32.48	2,238	0.6	0.7	0.6
South Central Division:						
Kentucky.....	44.03	37.18	8,211	4.2	3.0	2.9
Tennessee (1894-95).....	<i>b</i> 31.88	<i>b</i> 26.18	7,212	3.0	1.6	1.6
Alabama.....	.....	.....	7,039	1.4	0.6	0.7
Mississippi (1894-95).....	31.70	26.55	6,264	1.6	1.2	1.3
Louisiana.....	34.67	30.95	2,894	<i>b</i> 0.9	1.2	1.2
Texas.....	<i>d</i> 56.71	<i>d</i> 46.48	10,126	7.3	4.0	4.0
Arkansas.....	32.77	29.55	4,440	1.7	1.2	1.2
Oklahoma.....	.....	.....	1,180	0.4	0.4	0.4
North Central Division:						
Ohio.....	42.00	39.00	13,072	40.1	12.5	12.3
Indiana.....	48.25	40.25	<i>e</i> 9,890	<i>e</i> 18.8	6.6	7.1
Illinois.....	59.76	50.63	12,632	43.7	15.6	16.2
Michigan (1894-95).....	46.17	35.09	7,835	16.7	5.9	6.4
Wisconsin.....	65.27	32.21	<i>e</i> 6,795	<i>b e</i> 11.1	5.2	6.7
Minnesota.....	47.30	34.96	6,670	14.2	4.8	5.2
Iowa.....	38.28	32.23	13,686	15.8	8.5	8.0
Missouri.....	49.50	42.50	10,076	15.0	6.4	6.7
North Dakota.....	40.29	34.84	2,032	1.9	1.0	1.1
South Dakota (1893-94).....	.....	.....	3,524	3.4	1.3	1.7
Nebraska.....	44.53	37.58	6,720	8.7	3.2	3.4
Kansas.....	43.82	35.58	9,418	10.1	3.9	4.1
Western Division:						
Montana.....	<i>b</i> 64.13	<i>b</i> 49.72	591	1.9	0.7	0.7
Wyoming.....	58.04	45.89	306	0.4	0.2	0.2
Colorado.....	<i>b</i> 64.07	<i>b</i> 53.74	1,654	5.8	2.5	2.4
New Mexico.....	.....	.....	<i>a</i> 492	0.3	0.2	0.2
Arizona.....	72.90	66.26	<i>a</i> 293	0.4	0.2	0.2
Utah.....	65.21	44.00	942	2.5	0.9	0.8
Nevada.....	97.77	62.10	225	0.3	0.2	0.2
Idaho.....	58.52	46.31	658	0.7	0.3	0.3
Washington.....	44.56	38.14	1,890	4.8	0.9	1.4
Oregon.....	45.16	37.42	1,940	3.0	1.2	1.2
California.....	<i>e</i> 80.19	<i>e</i> 65.42	3,528	17.1	5.6	5.8

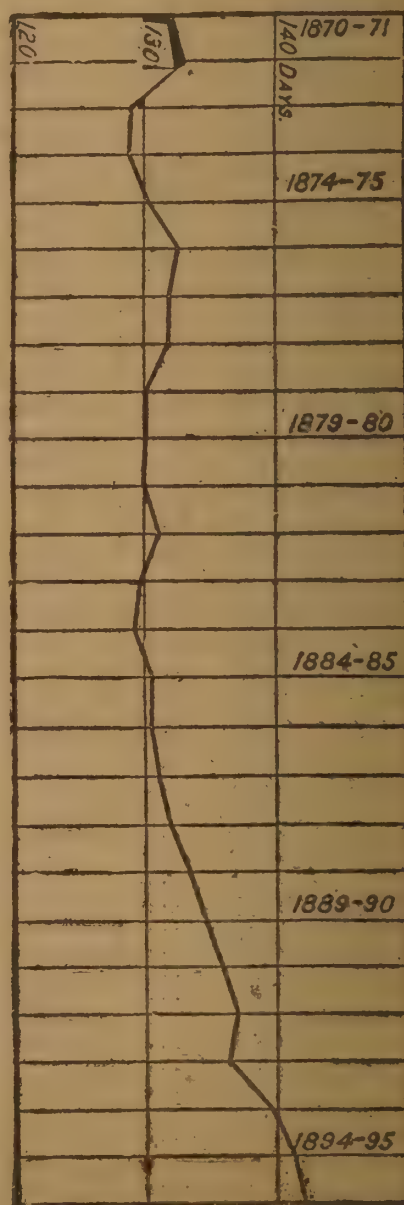
a Number of schools. *b* Approximately. *c* In 1894-95. *d* In 1892-93. *e* In 1893-94.

Much care brings grief.

No change has taken place in the tendency of urban growth since 1890, for while the school enrollment in the country at large shows an average annual growth of 2.1 per cent, the city schools have grown at the rate of 5.8 per cent; 24.2 per cent of the entire enrollment is in cities of over 8000 inhabitants, as against 20.1 per cent in 1891.



Per Cent of Total Population Enrolled in the Common Schools Since 1870.



Average Number of Days the Schools Were Kept Each Year Since 1870.

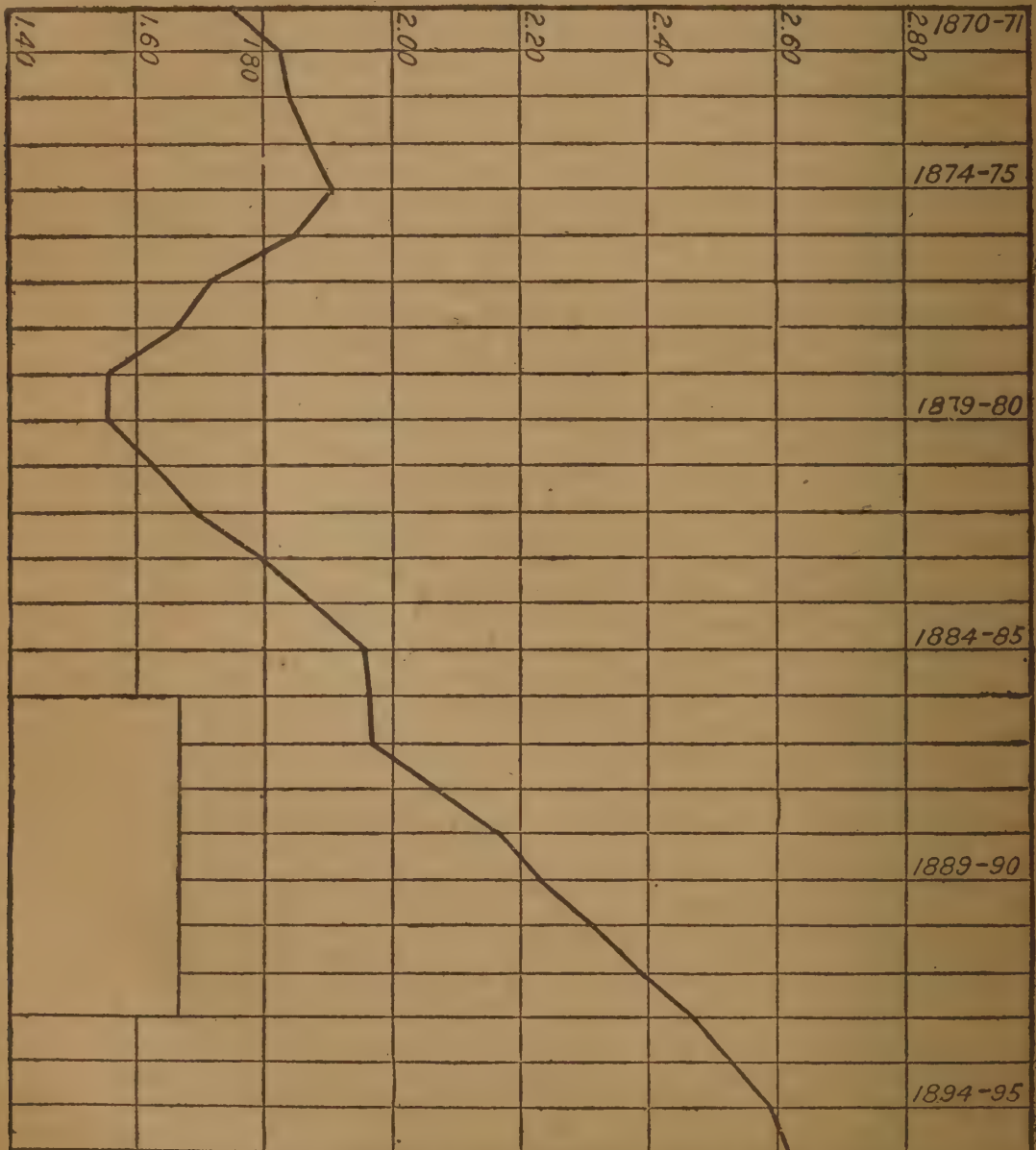
The number of students in public normal schools in 1896 was 40,421, an increase of 1,445 over the previous year. The number in private normal schools was 20,777, a decrease of 1150. The amount expended for public normal schools was \$2,187,875, an increase of \$27,500.

The School Children of the United States.

This table shows the number of children of school age, with comparison by sexes, also the percentage of the white children who are of foreign birth or parentage. It will be noted that in some states the class last named includes from one-half to four-fifths of the school children. The last two columns show the number of children who actually attend school, and the average number of days during the year for each pupil:

THE SCHOOL POPULATION.								
STATE OR TERRITORY.	Estimated No. of children 5 to 18 years of age, in 1896.			Per- cent- age of boys.	% of chil'n of for- eign birth or par- ent'ge	Number of pupils enrolled	Av. of days at- tend- ed by each pupil.	%pop- ulat'n una- ble to read and write.
	Boys.	Girls.	Total.					
United States.....	10,531,815	10,333,562	20,865,377	50.08	33.0	14,379,078	95.0	
No. Atlantic Division.	2,484,345	2,467,252	4,951,597	50.19	45.0	3,463,912	121.0	
So. Atlantic Division.	1,657,580	1,630,090	3,287,670	50.42	6.6	2,000,214	67.0	
So. Central Division..	2,241,000	2,182,250	4,423,250	50.66	8.6	2,689,538	61.1	
No. Central Division..	3,677,910	3,596,430	7,274,340	50.56	41.5	5,510,463	104.8	
Western Division.....	470,980	457,540	928,520	50.72	44.7	714,951	98.8	
Maine.....	81,520	79,780	161,300	50.53	25.0	134,140	96.2	5.5
New Hampshire (1894).	43,400	43,300	86,700	50.06	38.4	62,437	84.0	6.8
Vermont.....	42,260	39,710	81,970	51.55	33.4	65,411	108.9	6.7
Massachusetts.....	290,200	292,200	582,400	49.83	60.5	424,353	141.0	6.2
Rhode Island.....	47,730	48,170	95,900	49.77	62.4	59,241	135.9	9.8
Connecticut.....	96,720	95,780	192,500	50.24	54.6	141,485	128.4	5.3
New York.....	825,120	826,738	1,651,858	49.95	54.8	176,074	124.6	5.5
New Jersey.....	220,995	217,974	438,969	50.09	48.3	280,330	121.8	6.5
Pennsylvania.....	836,400	823,600	1,660,000	50.38	32.3	1,120,441	114.4	6.8
Delaware (1892).....	24,750	24,080	48,838	50.69	17.3	33,174	109.7	14.3
Maryland.....	170,200	169,000	339,200	50.18	24.4	219,362	102.2	15.7
District of Columbia..	33,720	35,720	69,440	48.55	26.3	42,464	142.3	13.2
Virginia.....	292,200	287,500	579,700	50.41	2.8	362,133	68.9	30.2
West Virginia.....	144,400	141,200	285,600	50.56	5.9	215,665	72.6	14.4
North Carolina.....	315,050	308,350	623,400	50.54	0.7	370,920	40.9	35.7
South Carolina.....	235,400	231,000	466,400	50.48	2.3	232,337	52.3	45.0
Georgia.....	361,700	353,600	715,300	50.57	2.1	423,786	66.3	39.8
Florida.....	80,160	79,640	159,800	50.17	11.5	100,373	67.1	27.8
Kentucky.....	329,900	322,900	652,800	50.53	8.7	400,126	82.5	21.6
Tennessee (1895).....	323,400	312,000	635,400	50.89	2.9	478,125	65.4	26.6
Alabama.....	309,300	301,000	610,300	50.68	3.2	319,526	44.2	41.0
Mississippi (1895).....	265,300	257,200	522,500	50.78	3.1	350,615	60.9	40.0
Louisiana.....	211,000	309,100	420,100	50.22	17.8	164,317	71.3	45.8
Texas.....	529,200	516,800	1,046,000	50.61	16.9	616,568	65.9	19.7
Arkansas.....	230,100	223,300	453,400	50.75	3.5	296,575	40.4	26.6
Oklahoma.....	42,800	39,950	82,750	51.73	9.6	63,686	44.7	5.4
Ohio.....	553,200	540,800	1,094,000	50.57	30.4	820,562	121.0	5.2
Indiana.....	341,100	335,000	676,100	50.45	17.8	543,665	105.3	6.3
Illinois.....	641,500	632,500	1,274,000	50.34	47.0	898,619	119.8	5.2
Michigan (1895).....	313,850	308,550	622,400	50.42	56.1	476,684	107.8	5.9
Wisconsin.....	309,200	304,600	613,800	50.37	72.4	412,514	105.1	6.7
Minnesota.....	239,600	235,100	474,700	50.48	76.4	354,657	91.8	6.0
Iowa.....	320,000	309,900	629,900	50.79	42.6	543,052	101.7	3.6
Missouri.....	471,600	463,600	934,800	50.45	22.5	664,947	91.9	9.1
North Dakota.....	42,830	40,060	82,890	51.67	80.3	57,088	72.5	6.0
South Dakota (1894)....	60,130	57,370	117,500	51.16	61.2	88,026	84.7	4.2
Nebraska.....	170,900	163,600	334,500	51.08	42.1	272,310	102.0	3.1
Kansas.....	214,000	205,750	419,750	50.98	26.4	378,339	80.2	4.0
Montana.....	19,140	18,750	37,890	50.52	49.4	28,876	100.5	5.5
Wyoming.....	11,010	10,260	21,270	51.78	47.2	11,582	59.8	3.4
Colorado.....	60,550	59,200	119,750	50.56	36.3	94,686	105.3	5.2
New Mexico.....	25,400	24,330	49,730	51.07	13.2	23,359	62.1	44.5
Arizona.....	10,060	9,860	19,920	50.52	57.1	12,889	75.2	23.4
Utah.....	42,430	41,440	83,870	50.59	66.6	66,710	104.0	5.6
Nevada.....	4,610	4,470	9,080	50.73	60.8	7,267	107.5	12.8
Idaho.....	19,960	18,850	38,810	51.43	41.1	32,560	77.5	5.1
Washington.....	55,730	53,070	108,800	51.20	39.3	90,113	62.6	4.3
Oregon.....	51,590	50,510	102,100	50.52	27.9	87,212	77.1	4.1
California.....	170,500	166,800	337,300	50.54	51.8	259,697	123.3	7.7

Ratio of adults unable to write to total population (1889): England, 9 per cent; Scotland, 6; Ireland, 23; France, 15; Germany, 4; Russia, 85; Austria, 45; Italy, 53; Spain, 72; Switzerland, 5; Belgium, 20; Netherlands, 14; Scandinavia, 3—Mulhall.



Amount Per Capita Paid for Common Schools, by Years Since 1870.

The National Educational association is a society numbering about 2000 active members and 8000 associate members. Secretary, Irwin Shepard, Winona, Minn. Object, to elevate the character and advance the interests of the profession of teaching, and to promote the cause of popular education in the United States. Annual fee, two dollars.

The American Institute of Instruction aims to promote the cause of popular education. Secretary, W. P. Beckwith, Salem, Mass.

Think of many things, do only one.

Studies in Country Schools.

Children in country schools may yet be taught with some reference to their surroundings and their natural sphere of life. Courses of study have been suggested tending to show the pupil how to get the most from life in the country, through enjoyment of the beauties of nature and natural science and by the acquirement of knowledge leading to a higher grade of agriculture and a more active and refined social life. The following course of study has been suggested by Mr Wilbur S. Jackman of the Chicago normal school:

Outdoor study, including drawing, painting and modeling of natural objects.

Science, including practical mechanics and manual training, enabling the pupil to understand and handle tools and machines. Mathematics, including bookkeeping as applied to farm accounts.

Biology, opening the way to new developments in the study of animals and plants.

Meteorology, enabling every child to know some of the conditions of climate and the nature of storms likely to visit his region.

Mineralogy, including the nature and composition of soils and rocks, and the geological history of the country.

Chemistry, with reference to the elements composing soils, plants, animals and foods.

The High Schools.

The table gives the number of pupils in the public and private high schools. Those attending such schools, but pursuing elementary studies, not included here. Figures given for twenty years, 1875 to 1896.

YEAR.	In public high schools.	In private high schools.	In both classes of schools.	YEAR.	In public high schools.	In private high schools.	In both classes of schools.
1875.....	.....	68,580	.....	1885-86.....	70,241	86,400	156,641
1876.....	22,982	73,740	96,722	1886-87.....	80,004	83,160	163,164
1877.....	24,925	73,560	98,485	1887-88.....	116,009	69,600	185,609
1878.....	28,124	73,620	101,744	1888-89.....	125,542	79,440	204,982
1879.....	27,163	74,160	101,323	1889-90.....	202,963	94,931	297,894
1880.....	26,609	75,840	102,449	1890-91.....	211,596	98,400	309,996
1881.....	36,594	80,160	116,754	1891-92.....	239,556	100,739	340,295
1882-83.....	39,581	88,920	128,501	1892-93.....	254,023	102,375	356,398
1883-84.....	34,672	95,280	129,952	1893-94.....	289,274	118,645	407,919
1884-85.....	35,307	97,020	132,327	1894-95.....	350,099	118,347	468,446

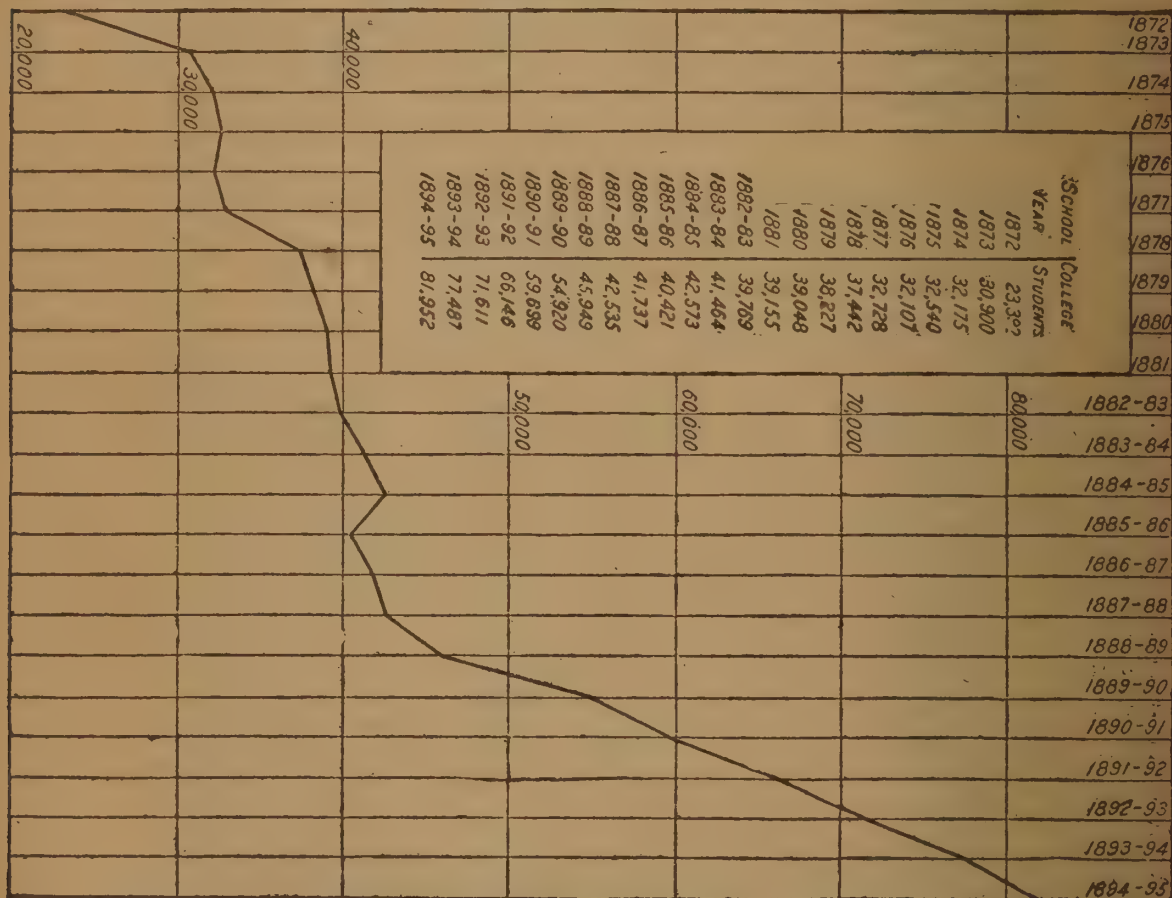
Before 1890 the public high schools outside of cities were not tabulated. Since that date those in rural districts have been included, and, as will be seen in the table, the increase for that year appears to be 77,000 instead of a normal increase of 10,000 or 20,000.

The number of pupils in secondary studies now amounts to about 7 persons in each 1,000 inhabitants, not counting the secondary pupils that are enrolled in elementary schools, which may amount to one-tenth of the entire number. It is important to observe that more than one-sixth of these students are preparing for college. One-half are studying Latin and one-twentieth are studying Greek.

Universities and Colleges.

The total number of universities and colleges for men and for both sexes reporting during the year 1896 was 484, of which number 345 admit women to undergraduate courses of study. Colleges for women alone number 162, with about 25,000 students, and equipment valued at sixteen millions of dollars and income of over \$3,000,000. There are 188 institutions which have not as yet any endowment, 54 have endowment funds less than \$25,000, and only four institutions have endowments exceeding \$5,000,000. In a large number of the institutions a comparatively small part of the work is collegiate. There are

at present 278 institutions having less than 100 students in undergraduate collegiate courses. The number of instructors reported by the 484 institutions was 12,277, while the number of students of all classes, secondary and higher, was 159,372. Of the latter number, 47,014 were in preparatory departments, 68,629 in collegiate departments, 4673 in graduate departments and 25,438 in professional departments. The property reported was as follows: Volumes in libraries, 6,453,677; value of material equipment, \$134,093,435; endowment funds, \$109,562,433. The benefactions for the year, so far as reported, amounted to \$8,342,728, and the income, excluding benefactions, was \$17,918,174.



Number of College Students Since 1872.

PROFESSIONAL SCHOOLS.

There are 155 schools of medicine in the United States, 144 of theology, 73 schools of law, 46 of dentistry, and 44 of pharmacy. The number of students in schools of theology shows but little variation from year to year, but in schools of law, dentistry and medicine there is a rapid increase.

Of the 144 schools of theology 57 are in the north central division, 45 in the north Atlantic, 19 in the south Atlantic, 17 in the south central, and 6 in the western division.

Of the 155 medical schools, 116 are regular, 20 homeopathic, 8 eclectic, 2 physiomedical, and 9 graduate. The whole number of medical students of all classes was 24,437, and the number graduating was 4947. The number of law students was 9780, dental 6399, and pharmaceutical 3873.

Agricultural Colleges.

STATE.	NAME OF INSTITUTION.	LOCALITY.	PRESIDENT.
Alabama	Agricultural and Mechanical College....	Auburn.....	W. L. Brown
Arizona	University of Arizona.....	Tucson.....	Howard Billman
Ark'nsas	Arkansas Industrial University.....	Fayetteville.....	J. L. Buchanan
Cal	College of Agriculture of the University	Berkeley	M. Kellogg
Colorado	The State Agricultural College.....	Fort Collins.....	Alston Ellis
Conn	Storrs Agricultural College.....	Storrs.....	B. F. Koons
	Sheffield Sci. School of Yale University.	New Haven	Timothy Dwight
Delaw're	Delaware College.....	Newark	A. N. Raub
	State College for Colored Students.....	Dover.....	W. C. Jason
Florida..	State Agri. and Mechanical College.....	Lake City.....	O. Clute
	Florida State Normal School.....	Tallahassee	T. De S. Tucker
Georgia..	College of Agri. and Mech. Arts.....	Athens.....	H. C. White
Idaho ...	College of Agri. of the University.....	Moscow.....	F. B. Gault
Illinois..	College of Agri. of the University.....	Urbana.....	A. S. Draper
Indiana..	School of Agri. Horti., and Veterinary Science of Purdue University	Lafayette.....	J. H. Smart
Iowa.....	College of Agri. and Mech. Arts.....	Ames	W. M. Beardshear
Kansas..	Kansas State Agricultural College.....	Manhattan.....	Geo. T. Fairchild
Ky.....	Agricultural and Mechanical College....	Lexington.....	J. K. Patterson
	State Normal School	Frankfort	J. H. Jackson
La.....	State University and Agri. and Mech. Col	Baton Rouge	J. W. Nicholson
	So. Uni. and Agri. and Mech. College....	New Orleans	H. A. Hill
Maine...	The Maine State College.....	Orono.....	A. W. Harris
Md.....	Maryland Agricultural College.....	College Park.....	R. W. Silvester
Mass.....	Massachusetts Agricultural College.....	Amherst.....	H. H. Goodell
Mich....	Michigan Agricultural College.....	Agricult'r'l College	J. L. Snyder
Minn....	College of Agri. of the University.....	Minneapolis.....	Cyrus Northrop
Miss.....	Agricultural and Mechanical College...	Agricult'r'l College	S. D. Lee
	Alcorn Agri. and Mech. College.....	Westside	T. J. Calloway
Missouri	College of Agri. and Mechanic Arts of the University.....	Columbia.....	Richard H. Jesse
Montana	College of Agri. and Mech. Arts.....	Bozeman.....	James Reid
Neb	Industrial College of the University....	Lincoln.....	G. E. MacLean
Nevada..	School of Agriculture of University	Reno.....	J. E. Stubbs
N. H.....	College of Agri. and the Mech. Arts.....	Durham	C. S. Murkland
N. J.....	Rutgers Scientific School	New Brunswick ..	Austin Scott
N. M.....	College of Agri. and Mech. Arts.....	Mesilla Park.....	C. T. Jordan
N. Y.....	Cornell University	Ithaca	J. G. Schurman
N. C.....	College of Agri. and Mech. Arts.....	Raleigh.....	A. Q. Holliday
N. D.....	North Dakota Agricultural College.....	Fargo.....	J. H. Worst
Ohio....	Ohio State University.....	Columbus	J. H. Canfield
Okl'nsa	Agricultural and Mechanical College....	Stillwater	G. E. Morrow
Oregon..	Oregon State Agricultural College.....	Corvallis	H. B. Miller
Penn ...	Pennsylvania State College	State College.....	Geo. W. Atherton
R. I.....	College of Agri. and Mech. Arts.....	Kingston.....	J. H. Washburn
S. C.....	Clemson Agricultural College.....	Clemson College...	E. B. Craighead
	College of Agri. and Mechanics' Insti- tute of Claflin University.....	Orangeburg	L. M. Dunton
S. D.....	South Dakota Agricultural College.....	Brookings.....	J. H. Shepard
Tenn ...	State Agri. and Mech. College.....	Knoxville	C. W. Dabney, Jr
Texas...	State Agri. and Mech. College.....	College Station....	L. S. Ross
	Prairie View State Normal School.....	Prairie View	L. C. Anderson
Utah	Agricultural College of Utah.....	Logan.....	L. Foster
Vermont	State Agri. College of the University...	Burlington	M. H. Buckham
Virginia.	Agricultural and Mechanical College....	Blacksburg.....	J. M. McBryde
	Hampton Normal and Agri. Institute....	Hampton.....	H. B. Frissell
Wash....	Agri. College and School of Science	Pullman.....	E. A. Bryan
W. Va...	West Virginia University.....	Morgantown	J. L. Goodknight
	The West Virginia Colored Institute....	Farm.....	J. H. Hill
Wis.....	College of Agri. of the University.....	Madison.....	C. K. Adams
Wy	College of Agri. of the University.....	Laramie.....	F. P. Graves
Canada..	Ontario Agricultural College.....	Guelph, Ont.....	Jas. Mills

In 1895 there were 5,325,858 pupils on the rolls of the English common schools, as compared with 4,825,560 in 1890. The attendance was 45,346,428, compared with 3,732,327 in 1890.

Better buy than borrow.

RICHEST COLLEGES AND UNIVERSITIES.

NAME.	Location.	Endowment.	Total income.
Girard.....	Philadelphia, Pa.	\$14,921,828	\$1,274,905
Columbia.....	New York, N. Y.	9,500,000	1,283,857
Harvard.....	Cambridge, Mass	8,526,813	1,337,637
Cornell.....	Ithaca, N. Y.	6,276,974	525,703
University of Chicago.....	Chicago, Ill.	5,350,742	589,898
Leland Stanford Jr.....	Stanford U., Cal.	4,000,000	200,000
Yale.....	New Haven, Ct.	3,821,875	729,681
Johns Hopkins.....	Baltimore, Md.	3,000,000	155,500

Following are the amounts of some of the largest single gifts ever made to American universities and colleges, also the names of the donors. Amounts given in thousands of dollars. (Last three ciphers omitted.)

Boston University, Isaac Rich.....	\$2,000	Johns Hopkins U., Johns Hopkins....	\$3,000
Case School of Applied Sciences, Leonard Case.....	2,000	Lehigh University, Asa Packer.....	2,500
Clark University, Jonas G. Clark....	2,000	Leland Stanford Jr. U., L. Stanford...	2,500
Columbia University, Seth Low.....	1,000	Pratt Institute, Charles Pratt.....	2,700
Cooper Union, Peter Cooper.....	1,750	Princeton University, John C. Green...	1,500
Cornell University, { Ezra Cornell.....	670	Tulane University, Paul Tulane.....	1,050
{ Henry W. Sage.....	1,170	Univ. of California, James Lick.....	750
De Pauw University, W. C. De Pauw....	1,500	Univ. of Chicago, J. D. Rockefeller....	7,426
Drexel Institute, Anthony J. Drexel....	3,000	Vanderbilt Univ., the Vanderbilts....	1,500
Girard College, Stephen Girard.....	7,000	Vassar College, Matthew Vassar.....	908
		Wesleyan Univ., George I. Senev.....	700

The English School System.

At the present time the educational system of England may be thus briefly outlined:

(1) School boards have jurisdiction over nearly 20,000,000 of the population of England and Wales, and school attendance committees over 10,000,000. The former bodies have power to provide school accommodation where there is a deficiency of seats in their district, while the powers of the latter are limited entirely to the administration of the law as to children's labor and school attendance.

(2) The voluntary managers have provided and maintained three-fifths of the elementary school accommodation of the country.

(3) While the school boards have power to build and maintain their schools on the security of their local rates, the voluntary schools rely on their endowments and subscriptions for such building and maintenance.

(4) While in the voluntary schools religious teaching in accordance with the distinctive doctrines of the denominations which established them, may be given, at regulated times and subject to the right of withdrawal of all children whose parents do not desire it for them, in a school-board school no religious teaching or religious formulary which is distinctive of a particular denomination may be given.

Schools of Technology.

The number of schools of technology, excluding technological departments of universities and colleges, in 1896 was 48, having 1118 instructors and 12,816 students. The total value of all property was reported at \$24,105,242, of which amount \$10,384,293 was reported as endowment funds. The income of these institutions was \$3,526,018, of which amount \$2,402,332 was appropriated by the general and state governments. The gifts and bequests received by the schools of technology amounted to but \$96 133.

Money is the ruin of many.

The Free Library Movement.

The present is a period of very rapid library extension. The libraries of the United States contain 36,000,000 volumes, three times the number reported in 1876, and the number of libraries has increased 200 per cent.

Laws providing for state aid to libraries have been enacted in many states. Under stimulus of such help from the states, Massachusetts has established 85 free libraries since 1890; Connecticut, 40 since 1891; New Hampshire, 130 since 1891; Vermont, 59 since 1894. The movement has lately extended to the south, and free libraries, with state aid, are springing up in Georgia, Tennessee, Louisiana and elsewhere.

GROWTH AND RESOURCES.

The number of volumes in the 4026 public and school libraries in 1896 of over 1000 volumes was 33,051,872. This was an increase of 7,074,229 over the number of volumes reported by the 3503 libraries of the same kind in 1891. Here is an increase of over 27 per cent in the number of volumes, while the increase in the number of libraries was scarcely 15 per cent. These figures accompany an increase of about 12 per cent in the population of the United States. Unfavorable business conditions since 1891 have operated to prevent the establishment of many libraries, yet the cheapness of books has been favorable to the growth of existing libraries with fixed incomes. More than half the increase in the number of volumes was made by the libraries in the north Atlantic division, which shows an increase of more than 28 per cent in the five years. The north central division also shows an increase of about 28 per cent in the number of volumes, while the western division increased its number of volumes nearly 40 per cent. The increase in the south Atlantic division was 18 per cent and in the south central 21 per cent.

The aggregate income of the public libraries of over 1000 volumes, in the United States, is nearly six millions of dollars. Of this amount one and seven-tenths millions is derived from taxation, about one and one-half millions from appropriations made by state, county or city, over one million from endowment funds and the remainder from contributions, membership fees, book rents, etc. The permanent endowment funds amount to 17½ millions of dollars and the value of library buildings is over 33 millions of dollars.

RURAL FREE LIBRARIES.

Doubtless a large proportion of the libraries in rural districts fall under the class containing between 300 and 1000 volumes. In 1896, there were 3158 of these libraries reported, and the actual number of them in the United States is probably at least 4000.

SCHOOL LIBRARIES.

About two-thirds of these small libraries belong to schools. In the north central states are 1043 libraries, with 510,154 volumes, and 785 libraries, with 337,455 volumes, are in the western division; California alone has 699 of these libraries, with 294,644 volumes. This is explained by the fact that the state provides for district school libraries. There are hundreds of such libraries of less than 300 volumes each, and doubtless many larger ones, not reporting to this office. The report of the state superintendent of public instruction for California for 1894 showed

Don't count your chicks before they are hatched.

that the district school libraries of that state contained 711,161 volumes, and that these libraries were valued at \$689,652. The amount expended for books for these libraries in 1894 was \$55,722, and there remained a balance to the credit of the library fund of \$55,007.

In Michigan, "Any school district by a two-thirds vote at any annual meeting may establish a district library, which shall be entitled to its just proportion of books from the library of any township in which it is situated, and also to its equitable share of any library moneys remaining unexpended in such township at the time of the establishment of such district library, or shall afterwards be raised by tax or apportionment."

In Wisconsin, "The treasurer of each town (not township) may withhold annually from the money secured from the state school fund for



Chart Showing Relative Number of Volumes in Libraries of 1,000 Volumes or Over to Each 100 Population in 1896.

the several school districts an amount equal to 10 cents for each person of school age residing in the town for the purchase of books for a school library." Under this law more than one-half of the districts in Wisconsin have been supplied with helpful libraries. "Year by year," quoting the state superintendent, "as teachers and pupils learn to use these libraries to better advantage, they are becoming of greater value as educational agencies." The school library, excellent in its place, has not proved suitable as a basis for circulation of books among general readers. Libraries for schoolrooms, to be composed of reference books, books of supplementary reading, class duplicates, and books for teachers, should be provided for in the public school law. School funds should be used and school authorities should manage these libraries. The business of lending books for home use is better and more economically managed by a public library organization.

STARTING A LIBRARY.

Persons intending to avail themselves of the state library laws should obtain copies and information by addressing their state library

Good wine needs no bush.

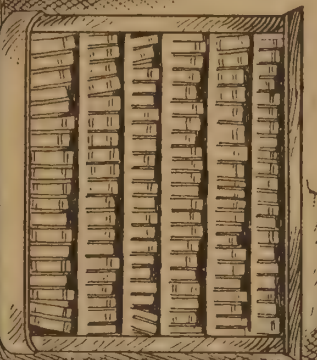
A valuable aid in selection of books for a library is the "Catalog of A. L. A. Library, 5,000 volumes for a public library, selected by the American Library Association and shown at the World's Columbian Exposition." The comprehensive library papers read at the Chicago Exposition are given in the Report of the Government Bureau of Education, 1892-93, and have also been printed in a separate pamphlet. Cutter's Rules for a Dictionary Catalog, is also useful in preliminary library work. All the above are free, published at Washington, D. C., by the U. S. Bureau of Education.



PUBLIC LIBRARIES OF
EUROPE IN 1896.



PUBLIC LIBRARIES OF
THE UNITED STATES IN 1875.



SCHOOL LIBRARIES OF THE
UNITED STATES IN 1896.



LIBRARIES IN THE UNITED STATES. PUBLIC SOCIETY
AND SCHOOLS IN 1896.

The United States has all along been the leader in the public library movement. The leaders of the plan in England admitted that the idea came from across the Atlantic. Even as long ago as 1875 the public libraries of the United States were more numerous than those of all Europe at the present time. The school libraries of to-day are more numerous than the public libraries of 1875, or than the present public libraries of Europe, while the grand total of American public and semi-public libraries in 1896 had increased 46 per cent from 1875 to 1885, and 35 per cent from 1885 to 1896, while the number of volumes gained 46 per cent from 1875 to 1885, and 67 per cent from 1885 to 1896.

commission, where such exists, at the capital city of the state, or copies of the state library laws from the department of state. Much valuable information may be obtained from the free publications of the U S bureau of education at Washington, D C.

In starting a library, public interest should be first awakened by informal or public meetings, where the importance of a library should be enlarged upon and plans suggested. Funds may be raised by subscription or by means of social gatherings and entertainments. Donations of books may be obtained, and the town should, if possible, be induced to vote a liberal amount.

State Library Commissioners, or those who, to some degree, supervise the libraries of the respective States, and who will advise and assist library managers and promoters, may be addressed as follows:

Massachusetts, State Librarian, Boston.
 Illinois, Librarian Public Library, Chicago.
 New York, State Librarian, Albany.
 Connecticut, Miss C. M. Hewins, Librarian, Hartford.
 New Hampshire, State Librarian, Concord.
 Wisconsin, Secretary Historical Society, Madison.
 Michigan, Supt. Pub. Instruction, Lansing.
 Maine, State Librarian, Augusta.
 Kentucky, State Lib. Com., Louisville.
 North Dakota, Supt. of Public Instruction, Bismarck.

Vermont, Library Commission, Montpelier.
 Maryland, E. B. Prettyman, State Supt. of Instruction, Baltimore.
 Minnesota, Supt. of Public Instruction, Minneapolis.
 New Jersey, State Supt. of Education, Trenton.
 North Carolina, Sec. of State, Raleigh.
 Rhode Island, Board of Education, Providence.
 Virginia, Sec. of the Commonwealth, Richmond.

Copies of library laws of other States may be obtained from the various departments of State.

TRAVELING LIBRARIES.

A recent development of the library movement is the traveling library. The idea is borrowed from Australia, where such libraries have been in operation many years. The first one in this country was sent out from Albany, N Y, in 1893, and the plan is now at work in half a dozen or more of the states. The purpose is that those who dwell in a community far removed from a library may be able to obtain some of the privileges and advantages of those who have easy access to a large collection of books. In brief, on the application of responsible parties, and the payment of transportation, a selected number of volumes (usually 50 or 100) is sent from the central library to a community, to circulate among the people for a few months. These traveling libraries bring books temporarily within the reach of those who are without them, and they tend to encourage the establishment of permanent libraries.

CO-OPERATIVE OR SOCIAL LIBRARIES.

In localities where the encouragement is not sufficient to form town or district libraries, co-operative libraries may be established. There is now in a number of the states a general law providing for the incorporation of such libraries, namely: Colorado, California, Florida, Illinois, Indiana, Maine, New Jersey, New York, Massachusetts, Mississippi, Pennsylvania, Rhode Island, Tennessee, Virginia, West Virginia, Wisconsin, and there may be some others in which similar provisions prevail.

These libraries are maintained by subscriptions or by assessments paid by the owners. The owners usually choose a president, librarian,

The early bird catches the worm,

treasurer and collector. The form of these associations is fixed by law in the above states and intending organizers will do well to obtain the law from their department of states.

BEST STATE LIBRARY LAWS.

The library movement was at first assisted indirectly by legislation; libraries of a certain size were exempted from taxation. This is an indirect though often an efficient way of legislating for libraries. The libraries of associations, societies, or corporations, together with the buildings owned by such associations, are exempt from taxation in the following states: Arizona, California, Colorado, Georgia, Illinois, Indiana, Iowa, Kansas, Maryland, Massachusetts, Minnesota, Mississippi, Nebraska, Pennsylvania, Rhode Island, Tennessee, Vermont, Washington, West Virginia, and Wyoming—in all, twenty-two. The increased interest in the subject is still further shown by legislative enactment in the following states: District of Columbia, Illinois, Kansas, Massachusetts, New Jersey, West Virginia, and Wisconsin, by which private libraries of a certain value are exempt from attachment as well as from taxation.

Direct aid was first afforded in the school district libraries of New York and the plan was followed by other states. But the school district plan was not completely successful and the township library has of late been regarded as the better unit. In many of the states these local libraries are encouraged by direct grants of money and by assistance and advice from a central library authority.

Among the best of library laws are those of Massachusetts, Connecticut, Illinois, Michigan, New York, Wisconsin, Maine.

MASSACHUSETTS has always been a pioneer in the library movement and leads in number of free libraries and number of volumes. The law of 1890 provides for a state library committee of five members, appointed by the governor. This commission advises library managers in regard to selection or cataloging of books. The commission may also expend not over \$100 for books for libraries in towns having no library; or towns whose taxed valuation does not exceed \$600,000. The town so aided must accept the gift at a regular town meeting, must provide for the care and distribution of the books and must contribute annually for the support of the library at least from \$15 to \$50, according to the valuation of the town. Towns are authorized to appropriate the local dog tax for support of the library, and many of them do so. Towns may at any regular meeting vote to establish libraries, vote money for them, and accept the provisions of the library law.

CONNECTICUT also has a state public library committee of five members appointed by the state board of education. Towns having no free library are assisted to the limit of \$200 and receive advice and help from the state committee. Towns must appropriate a sum equal to that received from the state and must provide for the care and increase of the library in a manner satisfactory to the committee. A town meeting is called and votes passed establishing a library, choosing directors, appropriating a sum equal to that received from the state, also a sum for annual maintenance, and the directors are authorized to provide a suitable room for the library.

NEW YORK centers its library system in the state library at Albany. Towns may establish libraries, vote money for them and even subsidize any libraries open to the public, grant not to exceed 10 cents

per volume of circulation. School districts or the libraries may be transferred to the public library system. Money annually appropriated by the state legislature is distributed by the regent of the state library to those libraries which have complied with its rules. Expenditure of public money is supervised by the regents. School libraries are provided for, the principals acting as librarians.

MAINE has a liberal law for encouragement of libraries. Towns of less than 1500 population may receive \$100 worth of books from the state, provided the town expends twice that sum for books and provides for their care and distribution. The librarian or trustees of any free library may ask advice of the governor and council and may receive instruction in cataloging, etc., at the state library. Towns may subsidize a library already existing, for the purpose of procuring access for the public. Towns may tax themselves for a library to the limit of \$2 per ratable poll, and \$1 per poll annually for maintenance. Each free library in the state may receive from the state aid to the amount of ten per cent on the sum expended during each year, the state grant to be expended for books.

MARYLAND pays \$10 per year to school district libraries, so long as the people of the district raise an equal sum. The state board of education furnishes a list of books suitable for school reading and reference, and on these books the Baltimore dealers allow discounts of from 10 to 33½ per cent.

WISCONSIN has a state library commission of five members, which gives advice and assistance to promoters of libraries and may send its members to aid in establishing new libraries.

NEW HAMPSHIRE has a state library commission of four members. Towns having no free libraries may receive not over \$100 worth of books from the state and must in return care for the books and appropriate at least from \$15 to \$50 per year for maintenance. By the law of 1895 every town is obliged to provide a public library.

ILLINOIS library law provides that on petition of fifty legal voters, towns, villages and townships may vote whether or not to establish a library and may vote not over two mills on the dollar as a library tax. The provisions for the formation of city libraries are very complete and many states have modeled this part of their laws after that of Illinois.

MICHIGAN provides by the state constitution for a free library in every township. It is in charge of a local board of school directors, who appoint a librarian and establish and enforce suitable library rules. Townships may vote money for maintenance, and towns receive in addition proceeds of fines and exemptions at the county court. The money is divided among the towns pro rata according to the number of school children.

IN GENERAL, it appears that the best library laws provide for local and school libraries, encourage the voting of a fixed income and supervision by some centralized authority. Management of local libraries should be free from party control, trustees numbering not less than five and serving not less than three years, with one or two changes each year. Penalties are provided for theft, injury to books, disorder, etc. The tendency of library legislation is toward the recognition of libraries as a part of the educational system, thus making them compulsory and bringing them under public control.

More than we use is more than we want,

The Libraries for One Year.

Number of periodicals, number of books added and their cost, number circulated and total income; these figures being for 1896 and including all the public, society and school libraries of the United States.

	Periodicals, No. on file.	Volumes added.	Books issued for home use.	Books issued for lib'y use.	Spent for books.	Total income.
Maine.....	1,556	21,027	600,978	82,054	\$21,524	\$67,785
New Hampshire....	1,402	26,283	698,295	102,568	23,205	63,402
Vermont.....	973	15,761	316,304	20,875	11,999	30,966
Massachusetts.....	14,351	249,986	6,706,970	373,621	289,474	970,577
Rhode Island.....	1,945	24,440	534,089	35,815	30,002	54,677
Connecticut.....	4,065	70,751	1,480,748	49,123	66,079	244,369
New York.....	18,119	249,985	4,525,641	1,238,708	294,363	1,099,443
New Jersey.....	3,621	43,987	1,290,171	47,806	35,341	157,700
Pennsylvania.....	9,635	180,901	3,254,642	399,357	106,041	459,076
Delaware.....	191	4,587	149,001	1,545	3,941	33,241
Maryland.....	2,852	34,380	706,006	141,247	28,088	104,310
Dist. of Colum.....	3,298	42,723	148,576	148,066	39,249	93,785
Virginia.....	1,244	13,026	90,987	3,413	8,834	13,204
West Virginia.....	118	1,667	58,616	12,908	1,280	8,581
North Carolina.....	834	5,763	27,651	880	4,208	4,521
South Carolina.....	376	3,057	34,954	250	1,147	5,142
Georgia.....	542	13,365	81,764	1,216	6,361	17,739
Florida.....	171	2,018	6,064	1,470	1,689	3,543
Kentucky.....	517	10,557	27,144	55,711	8,361	24,903
Tennessee.....	1,297	6,428	62,432	33,184	7,322	22,746
Alabama.....	534	4,939	8,797	6,061	3,819	4,599
Mississippi.....	427	5,017	10,855	800	2,340	4,542
Louisiana.....	493	6,041	18,896	23,441	3,056	10,842
Texas.....	379	5,001	62,561	8,589	7,948	11,436
Arkansas.....	271	10,312	11,401	500	2,389	7,618
Oklahoma.....	127	574	.....	.....	2,874	400
Indian Territory.....	12	40	.....	.....	35	60
Ohio.....	7,075	62,945	2,088,278	549,157	76,311	374,099
Indiana.....	1,604	23,447	843,191	333,996	35,222	118,437
Illinois.....	8,016	96,588	3,039,273	1,992,736	85,758	787,262
Michigan.....	3,336	59,965	1,464,103	676,077	59,111	142,869
Wisconsin.....	7,443	40,944	905,640	45,612	34,066	124,453
Minnesota.....	2,188	37,300	946,628	327,937	52,704	135,879
Iowa.....	2,553	31,569	565,452	49,358	35,686	104,421
Missouri.....	2,284	36,354	894,391	244,239	47,128	169,045
North Dakota.....	105	1,488	1,257	.....	1,500	2,300
South Dakota.....	261	3,892	28,710	1,453	3,525	3,836
Nebraska.....	1,120	15,548	445,824	81,129	15,042	41,951
Kansas.....	2,386	18,741	253,831	28,411	17,668	40,416
Montana.....	1,049	7,536	180,807	60,586	4,211	28,209
Wyoming.....	43	830	10,980	1,200	900	1,100
Colorado.....	1,399	21,128	475,490	29,785	20,284	47,933
New Mexico.....	72	1,056	.....	850	700	3,258
Arizona.....	66	230	.....	.....	538	933
Utah.....	179	980	14,824	18,620	1,142	4,158
Nevada.....	120	2,069	17,253	1,800	1,473	3,056
Idaho.....	234	1,915	1,540	5,800	2,282	1,953
Washington.....	585	4,769	132,645	16,107	2,868	17,687
Oregon.....	618	3,967	46,761	380	6,312	15,334
California.....	4,162	65,984	1,821,634	452,389	59,010	223,852

Libraries in the United States of Over 1,000 Volumes.

	N. A. Div.	S. A. Div.	S. C. Div.	N. C. Div.	W. Div.	U. S.
Libraries.....	2,060	322	255	1,195	254	4,026
Volumes.....	17,647,723	4,015,087	136,451	8,016,780	2,011,831	33,051,872
Estimated population in 1895..	19,318,000	9,436,000	12,091,000	25,234,000	3,875,000	69,954,000
No. of people per library.....	9,659	29,305	47,416	21,113	15,256	17,376
Books per 100 people.....	91	43	11	32	52	47

Great haste makes great waste.

The Largest Libraries.

Details of the 34 libraries in the United States containing 100,000 volumes or over.

LIBRARY.	Date of Founding.	Volumes.	Books issued during year for home use.	Total Income.	Name of Librarian.
Yale University, New Haven, Conn....	1700	210,000	.....	\$28,815	A. Van Name.
House of Rep., Washington, D. C.....	.....	100,000	.....	.....	N. S. Galleher, Asst.
U. S. National Mus., Washington, D. C.	1800	740,000	.....	63,720	J. R. Young.
Chicago, Ill., Public Library.....	1872	217,065	1,147,862	501,396	F. H. Hild.
University of Chicago, Public Library	1891	305,000	.....	.....	Z. A. Dixon.
Enoch Pratt, Baltimore, Md.....	1882	166,854	548,278	54,500	B. C. Steiner.
Peabody, Baltimore, Md....	1857	124,501	17,990	10,000	P. R. Uhler.
Boston Public Library.....	1852	630,961	847,321	250,000	Herbert Putnum.
Boston Athenaeum.....	1807	180,000	58,980	34,807	Wm. C. Lane.
Harvard University, Cambridge, Mass	1638	460,000	105,000	50,000	.....
Amer. Antiquarian Soc., Worcester, Mass	1812	100,000	.....	6,393	W. R. Cutter.
Worcester, Mass., Public Library.....	1859	105,000	.....	31,132	S. S. Green.
Sutro Lib., San Francisco, Cal.....	.....	200,000	.....	.....	George Moss.
Sacramento, Cal., State Library.....	.....	100,032	.....	.....	.....
Detroit, Michigan, Public Library.....	1865	139,360	347,224	49,192	H. M. Utley.
St. Louis, Mo., Public Library.....	1865	109,663	476,000	64,000	F. M. Crunden.
Newberry, Chicago, Ill.....	1887	135,244	398,486	.....	.....
Cincinnati, O., Public Library.....	1850	188,409	312,810	65,791	A. W. Whelpley.
Cleveland, O., Public Library.....	.....	106,418	595,000	127,898	C. S. Harbaug, As.
Princeton University, New Jersey.....	1746	102,000	27,880	.....	E. C. Richardson.
Albany, N. Y., State Library.....	1818	320,718	280,000	46,534	Melvil Dewey.
Brooklyn, N. Y. State Library.....	1857	123,962	60,000	21,238	W. A. Bardwell.
Cornell University, Ithaca, N. Y.....	1868	180,600	12,437	31,892	George W. Harris.
Columbia University, New York City.	1754	220,000	53,471	67,882	George H. Baker.
Mechanical and Tradesman's, N. Y....	1820	108,000	247,906	25,000	Jacob Schwartz.
New York Public Library.....	.....	397,850	262,264	150,000	J. S. Billings, Dir.
Soc. Library, New York.....	1700	100,000	27,174	9,725	F. B. Bigelow.
Merc. Library Association, New York	1820	252,954	142,175	26,970	W. T. Peoples.
Harrisburg, Pa., Library.....	1790	118,000	.....	7,500	Wm. H. Egle.
Philadelphia, Pa., Free.....	1891	105,308	1,500,000	100,000	John Thomson.
Philadelphia, Pa., Library Co.....	1731	188,625	40,793	46,386	James G. Barnwell
Philadelphia, Pa., Mercantile Library	1821	177,000	78,000	17,100	John Edmands.
Philadelphia, Pa., University of Pa....	1749	140,000	.....	.....	Gregory B. Keen.

The Various Classes.

	North Atlantic Division	South Atlantic Division	South Central Division	North Central Division	Western Division	United States.
General.....	986	56	31	413	74	1,560
School.....	434	70	59	309	68	940
College.....	115	95	122	247	47	626
College Society.....	18	9	8	17	2	54
Law.....	57	13	5	34	18	127
Theological.....	50	11	3	29	4	97
Medical.....	26	5	2	11	..	44
Government.....	2	19	..	2	..	23
State.....	10	2	6	5	3	26
Asylum and Reformatory.....	46	7	4	26	4	87
Young Men's Christian Assn....	56	6	3	16	3	84
Masonic.....	2	3	3	2	4	14
Ind. Order of Odd Fellows.....	3	3	1	6	4	17
Social.....	43	5	..	5	4	57
Scientific.....	42	5	2	22	7	78
Historical.....	37	5	..	16	2	60
Garrison.....	5	2	1	4	2	14
Mercantile.....	8	..	..	1	1	10
Society.....	60	6	5	30	7	108

Much feasting makes no friends.

Total Number of Libraries and Number of Volumes in the United States.

STATES AND TERRITORIES.	Libraries over 1,000 volumes.	Less than 1,000 but over 299.	Total of 300 vols. and over.	STATES AND TERRITORIES.	Libraries over 1000 volumes.	Less than 1,000 but over 299.	Total of 300 vols. and over.
United States.....	4,026	3,158	7,184	Mississippi.....	31	30	61
North Atlantic Division..	2,000	912	2,912	Louisiana.....	27	14	41
South Atlantic Division..	322	176	498	Texas.....	39	51	90
South Central Division...	255	242	497	Arkansas.....	17	22	39
North Central Division...	1,195	1,043	2,238	Oklahoma.....	2	1	3
Western Division.....	254	785	1,039	Indian Territory....	2	6	8
North Atlantic Division:				North Central Division:			
Maine.....	93	34	127	Ohio.....	202	144	346
New Hampshire.....	122	75	197	Indiana.....	107	88	195
Vermont.....	67	33	100	Illinois.....	214	134	348
Massachusetts.....	494	136	630	Michigan.....	153	127	280
Rhode Island.....	74	16	90	Wisconsin.....	102	87	189
Connecticut.....	154	63	217	Minnesota.....	75	79	154
New York.....	572	282	854	Iowa.....	113	139	252
New Jersey.....	94	116	210	Missouri.....	104	108	212
Pennsylvania.....	330	157	487	North Dakota.....	6	17	23
South Atlantic Division:				South Dakota.....	14	12	26
Delaware.....	14	7	21	Nebraska.....	42	36	78
Maryland.....	67	26	93	Kansas.....	63	72	135
District of Columbia...	55	9	64	Western Division:			
Virginia.....	50	37	87	Montana.....	13	9	22
West Virginia.....	10	18	28	Wyoming.....	4	1	5
North Carolina.....	40	22	62	Colorado.....	34	21	55
South Carolina.....	32	18	50	New Mexico.....	6	4	10
Georgia.....	41	31	72	Arizona.....	4	2	6
Florida.....	13	8	21	Utah.....	11	13	24
South Central Division:				Nevada.....	6	2	8
Kentucky.....	47	48	95	Idaho.....	5	2	7
Tennessee.....	62	51	113	Washington.....	20	10	30
Alabama.....	28	19	47	Oregon.....	16	22	38
				California.....	35	699	834

Sources of Support.

Libraries of over 1000 volumes.

	North Atlantic Division	South Atlantic Division	South Central Division	North Central Division	Western Division
No. owning or renting buildings.....	464	65	26	180	30
No. renting buildings.....	287	21	14	178	48
Supported by taxation.....	600	44	25	405	73
Supported by corporation.....	1,112	216	183	696	139
Free.....	928	53	64	424	89
Free for reference.....	276	71	50	209	29
Subscription.....	364	64	60	230	54
Circulation.....	216	17	11	92	6
Reference.....	301	78	77	197	52
Both circulating and reference.....	1,348	173	122	801	156

The library at Peterboro, N. H., was established in 1833 and is considered the first public library in the country supported wholly or partly by public taxation. A free public library was established at Wayland, Mass., and opened to the public in 1850. A third was opened in March, 1853, at New Bedford, Mass. The public library movement is an American idea, but was taken up in England to some extent as a result of a parliamentary commission which reported in 1850.

The nearer the bone the sweeter the meat.

IMMIGRATION.

During the ten years from 1880 to 1890 over five million immigrants came to the United States, or 35 per cent of the total immigration from 1820 to 1890. During the recent years of business depression the number of arrivals has been considerably reduced, but with better times, as on former occasions, immigration will tend to return to its former volume, unless proposed restrictive measures prevail.

Since 1870 the general character of the immigration has become less desirable than formerly. The proportion of British, French, German and Scandinavian immigrants has decreased from three-fourths of the whole number of arrivals in 1870 to only two-fifths in 1896. On the other hand, the less desirable classes from Italy, Hungary, Poland and Russia have sent constantly increasing numbers.

According to the prison reports of Massachusetts, excluding cases of drunkenness, criminals from the foreign classes compare as follows: Germany, 3.6 per thousand; Scandinavia, 5.1; Scotland, 5.8; France, 6.1; Ireland 7.1; England 7.2; Russia 7.9; Austria 10.4; Hungary 15.4; Poland 16; Italy 18.2. It is found, also, that the majority of the less desirable immigrants settle in the large cities and thus increase the slum districts. Nearly 60 per cent of Italian immigrants, for instance, are found in the large cities. Moreover, it appears that the same classes of immigrants bring very little money with them and are often ignorant of any useful occupation. Advocates of immigration restriction claim that a large part of these undesirable immigrants are also unable to read or write their own language and that accordingly the reading and writing test will sift out the greater part of them. Such a test will needs be carefully prepared to avoid danger of evasion. If applied to the immigration of 1896, about 29 per cent of the number would have been excluded and 23 per cent in 1897.

Immigration by Ports of Entry.

PORTS.	1896.			1897.		
	Males.	Females.	Total.	Males.	Females.	Total.
Baltimore, Md.....	8,349	5,025	13,374	3,405	2,810	6,215
Boston, Mass.....	10,284	11,562	21,846	5,814	7,519	13,333
Galveston, Tex.....				543	391	934
Gloucester, Mass.....	4	2	6			
Key West, Fla.....	4,087	2,703	6,790	2,367	1,823	4,190
Miami, Fla.....				13	9	22
New Orleans, La.....	1,014	561	1,575	1,005	448	1,453
New Bedford, Mass.....	130	79	209	237	110	347
New York, N. Y.....	165,768	97,941	23,709	106,040	74,516	180,556
Philadelphia, Pa.....	15,562	9,415	24,977	6,376	4,554	10,930
Portland, Me.....	259	102	361	319	104	423
Portland, Oregon.....	66	12	78	138	3	141
Provincetown, Mass.....				13		13
San Francisco, Cal.....	1,096	315	1,411	1,285	344	1,629
Tampa, Fla.....	9	1	10			
Total United States...	206,628	127,718	334,346	127,555	92,631	220,186
Through Can. via Halifax	840	476	1,316	455	241	696
Port Lewis.....	1,366	1,083	2,449	1,254	1,097	2,351
Quebec.....	1,613	1,333	2,946	1,364	1,231	2,595
Vancouver.....	1,873	145	2,018	3,959	145	4,104
St. John.....	146	46	192	520	380	900
Total Canada.....	5,838	3,083	8,921	7,552	3,094	10,646
Grand Total.....	212,466	130,801	343,267	135,107	95,725	230,832

Comparison of the Fiscal Years Ending June 30, 1896 and 1897.

Total immigration,	1896.	1897.
Decrease in 1897 as compared with 1896,	343,267	230,832
Per cent of decrease,		112,435
Number debarred from entrance and returned within one year after landing,		33
Per cent debarred and returned,	3,037	1,880
Total number of illiterate,	0.9	0.8
Per cent of illiterate in total immigration over 15 y'rs of age,	83,196	44,580
Per cent of total immigration coming from Austria-Hungary,	29	23
Italy, Poland and Russia,		
Per cent of total immigration coming from the United Kingdom, France, Germany and Scandinavia,	52	52
Average money brought by immigrants in dollars,	39	38
Per cent of total immigration having no occupation whatever,	11	15
Per cent of total immigration who were farmers, laborers or servants,	36	*
Per cent of total immigration destined for the four States of Ill., Mass., N. Y., and Pa.,	46	*
Per cent of total immigration destined for States south of the Potomac River, Pa., and the Ohio River, or west of the Mississippi River,	72	*
	11	*

* Not yet tabulated, but undoubtedly similar to 1896.

Immigration, which was 1-3 larger in 1896 than in 1895, has fallen in 1897 below that of 1895. It may be noted that while the proportion of the total immigration from southeastern Europe has not diminished, the proportion from northwestern Europe, which was 52 per cent in 1895 and 39 per cent in 1896, was only 38 per cent in 1897,—a steady decline.

Of immigrants from particular countries the Swiss, Scotch and Portuguese, in 1897, fell below the number of 2,000, while the Poles increased again above that number.

The proportion debarred and returned is steadily diminishing, having been 1 per cent in 1895, 0.9 per cent in 1896 and 0.8 per cent in 1897.

There was some decrease in general illiteracy and an increase in the average amount of money brought by each immigrant, as compared with the year preceding.

Number of persons in each hundred immigrants over fifteen years of age who cannot write or cannot read and write their own language, from those nations of Europe which sent upwards of 2,000 immigrants to the United States during the fiscal year ending June 30, 1897:

Denmark,	0.5
Sweden,	0.9
Norway,	1.1
Germany,	1.8
England,	4.1
France,	4.3
Ireland,	6.4
Finland,	8.2
Russia,	27.9
Austria-Hungary,	28.1
Poland,	39.4
Italy,	50.9
Average United Kingdom, France, Germany, and Scandinavia,	3.6
Average Austria-Hungary, Italy, Poland and Russia,	39.9
Average from all countries,	23.2

*Years	Aliens.	†Years	Immigrants.
1820	8,385	1856	195,857
1821	9,127	1857	246,945
1822	6,911	1858	119,501
1823	6,354	1859	118,616
1824	7,912	1860	150,237
1825	10,199	1861	89,724
1826	10,837	1862	89,007
1827	18,875	1863	174,524
1828	27,382	1864	193,195
1829	22,520	1865	247,453
1830	23,322	1866	314,917
1831	22,633	1867	310,965
1832	60,482	1868	138,840
1833	58,640	1869	352,768
1834	65,365	1870	387,203
1835	45,374	1871	321,350
1836	76,242	1872	404,806
1837	79,340	1873	459,803
1838	38,914	1874	313,339
1839	68,069	1875	227,498
1840	84,066	1876	169,986
1841	80,289	1877	141,857
1842	104,565	1878	138,469
1843	52,496	1879	177,826
1844	78,615	1880	457,257
1845	114,371	1881	669,431
1846	154,416	1882	788,992
1847	234,968	1883	603,322
1848	226,527	1884	518,592
1849	297,024	1885	395,346
1850	310,004	1886	334,203
1851	379,466	1887	490,109
1852	3,1,603	1888	546,889
1853	368,645	1889	444,427
1854	427,833	1890	455,302
1855	200,877	1891	560,319
		1892	623,084
		1893	502,917
		1894	314,467
		1895	279,948
		1896	343,267
		1897	230,832
Total	4,212,624	Total	14,053,390

*Calendar years, †Fiscal years.

Number of Immigrants Arrived in the United States.

By Sex and Nationality, for 12 months, ending June 30, 1896 and 1897.

	1896			1897.		
	M.	F.	Total.	M.	F.	Total.
Austria-Hungary	43,125	21,978	65,103	18,773	14,258	33,031
Belgium	793	468	1,261	490	270	760
Denmark	1,749	1,418	3,167	1,212	873	2,085
France (including Corsica)....	1,381	1,082	2,463	1,209	898	2,107
Germany	16,942	14,943	31,885	11,899	10,634	22,533
Greece	2,124	51	2,175	546	25	571
Italy	51,067	16,993	68,060	41,446	17,985	59,431
Netherlands	929	654	1,583	558	332	890
Norway	5,581	3,274	8,855	3,535	2,307	5,842
Portugal	1,410	1,356	2,766	962	912	1,874
Roumania	453	332	785	413	378	791
Russia (proper)	28,438	16,699	45,137	12,436	10,314	22,750
Finland	3,725	2,583	6,308	1,458	1,608	3,066
Poland	409	282	691	2,654	1,511	4,165
Spain	293	58	351	425	41	466
Sweden	10,968	10,209	21,177	6,213	6,931	13,144
Switzerland	1,401	903	2,304	975	591	1,566
Turkey in Europe	118	51	169	110	42	152
England	11,178	8,314	19,492	5,998	3,976	9,974
Ireland	17,625	22,637	40,262	11,549	16,872	28,421
Scotland	2,000	1,483	3,483	1,054	829	1,883
Wales	915	666	1,581	539	331	870
Not specified	4	5	9	18	7	25
Total Europe	202,628	126,439	329,067	124,472	91,925	216,397
Mexico	64	86	150	42	49	91
Total Central America	10	7	17	6		6
Total British North America ..	196	77	273	180	110	290
Cuba	3,638	2,439	6,077	1,968	1,585	3,553
Other West Indies	453	298	751	293	255	548
South America	28	7	35	28	21	49
Turkey in Asia, Arabia & Syria,	2,915	1,224	4,139	3,203	1,529	4,732
China	1,382	59	1,441	3,334	29	3,363
Japan	1,007	103	1,110	1,420	106	1,526
Asia, not specified	60	14	74	40	1	41
Australia	59	28	87	65	74	139
Hawaiian Islands	9	14	23	29	26	55
Pacific Islands, not specified..	2		2	3	2	5
Africa	15	6	21	24	13	37
Grand Total	212,466	130,801	343,267	135,107	95,725	230,832

Receiving Immigrants.

The great American port of entry for immigrants is New York, where the arrangements for their reception are complete. Ships containing immigrants are visited six miles from the port by health officers, and the sick or diseased are removed to hospitals under the care of the commissioner of immigration or the quarantine commission. The immigrants are examined and paupers sent back to the country from which they came. Care is taken to prevent the new arrivals from falling into bad hands. Information is freely afforded them, and the supervision is extended over the various lines of railroads on which the immigrants travel to their destination. A tax of \$1 each is imposed.

Of the immigrants sent to us in 1893 by the various countries of Europe, but a small proportion were skilled workmen.

Thus among immigrants from Scotland there was skilled one in 4; from England and Wales, 1 in 5; Belgium, 1 in 7; France, 1 in 9; Germany and Norway, 1 in 10; Italy, 1 in 14; Russia, 1 in 18; Ireland 1 in 19; Poland, 1 in 23; Austria-Hungary, 1 in 29.

The darkest hour is nearest dawn.

RELIGION AND TEMPERANCE

Church Dignitaries in the United States.

APOSTOLIC DELEGATION. (Roman Catholic.)

Sebastian Martinelli, Abp. Ephesus, Papal Delegate, Washington, D. C.

Rev. Donatus Sbarette, Auditor, Wash., D. C. | Rev. F. Z. Rooker, Secretary, Wash., D. C.

ARCHBISHOPS. (Roman Catholic.)

*James Gibbons, Baltimore, Md.
John J. Williams, Boston, Mass.
Patrick A. Feehan, Chicago, Ill.
Wm. H. Elder, Cincinnati, Ohio.
John Hennessy, Dubuque, Ia.
Frederick Katzer, Milwaukee, Wis.
Francis Janssens, New Orleans, La.

* Also a cardinal priest.

M. A. Corrigan,
W. H. Gross,
P. J. Ryan,
John J. Kain,
John Ireland,
Patrick W. Riordan,
P. L. Chappelle,

New York, N. Y.
Portland, Ore.
Philadelphia, Pa.
St. Louis, Mo.
St. Paul, Minn.
San Francisco, Cal.
Santa Fe, N. M.

BISHOPS.

Thos. M. Burke,
James Ryan,
J. Janssen,
A. J. Glorieux,
John Brady (Auxiliary)
C. E. McDonald,
Vacant,
J. S. Michand,
H. P. Northrop,
I. F. Horstmann,
J. A. Watterson,
C. P. Maes,
Edward J. Dunne,
H. Cosgrove,
N. C. Matz,
John S. Foley,
James McGoldrick,
Tobias Mullen,
John Shanley,
J. Rademacner,
N. A. Gallagher,
H. J. Richter,
Sebastian Messmer,
Theodore Meerschaert,
Thomas P. McGovern,
M. Tierney,
J. B. Brondel,
S. F. Chatard,
L. M. Fink,
John J. Hogan,
J. J. Glennon (Coadjutor),
James Schwebach,
P. Verdagner,
Thomas Bonacum,
Edward Fitzgerald,
Vacant,
G. Montgomery (Coadj.),
Wm. G. McCloskey,
D. M. Bradley,

Albany, N. Y.
Alton, Ill.
Bellefonte, Ill.
Boise City, Ia.
Boston, Mass.
Brooklyn, N. Y.
Buffalo, N. Y.
Burlington, Vt.
Charleston, S. C.
Cleveland, O.
Columbus, O.
Covington, Ky.
Dallas, Texas.
Davenport, Ia.
Denver, Col.
Detroit, Mich.
Duluth, Minn.
Erie, Pa.
Fargo, N. D.
Fort Wayne, Ind.
Galveston, Texas.
Grand Rapids, Mich.
Green Bay, Wis.
Guthrie, Okla.
Harrisburg, Pa.
Hartford, Conn.
Helena, Mont.
Indianapolis, Ind.
Kansas City, Kan.
Kansas City, Mo.
Kansas City, Mo.
La Crosse, Wis.
Laredo, Texas.
Lincoln, Neb.
Little Rock, Ark.
Los Angeles, Cal.
Los Angeles, Cal.
Louisville, Ky.
Manchester, N. H.

John Vertin,
Eugene O. Connell,
Vacant,
Thomas S. Byrne,
Thomas Heslin,
Anthony Durier,
Edward J. O'Dea,
W. M. Wigger,
J. M. Farley (Auxiliary),
Henry Gabriels,
Richard Scannell,
J. L. Spalding,
B. Phelan,
J. A. Healy,
M. Harkins,
A. Van de Vyver,
B. J. McQuaid,
John Moore,
Vacant,
M. F. Burke,
Thomas Grace,
Lawrence Scanlan,
J. A. Forrest,
T. A. Becker,
Wm. O'Hara,
M. J. Hoban (Coadjutor),
Timothy Treacy,
Thomas O'Gorman,
T. D. Beaven,
P. A. Ludden,
J. A. McFaul,
P. Bourgade,
J. N. Lemmeus,
P. J. Donahue,
J. J. Hennessy,
Vacant,
Leo Haid,
Joseph B. Cotter,

Marquette, Mich.
Marysville, Cal.
Mobile, Ala.
Nashville, Tenn.
Natchez, Miss.
Natchitoches, La.
Nesqually, Wash.
Newark, N. J.
New York, N. Y.
Ogdensburg, N. Y.
Omaha, Neb.
Peoria, Ill.
Pittsburg, Pa.
Portland, Me.
Providence, R. I.
Richmond, Va.
Rochester, N. Y.
St. Augustine, Fla.
St. Cloud, Minn.
St. Joseph, Mo.
Sacramento, Cal.
Salt Lake City, Utah.
San Antonio, Texas.
Savannah, Ga.
Scranton, Pa.
Scranton, Pa.
Sioux City, Ia.
Sioux Falls, S. D.
Springfield, Mass.
Syracuse, N. Y.
Trenton, N. J.
Tucson, Ariz.
Vancouver, Wash.
Wheeling, W. Va.
Wichita, Kan.
Wilmington, Del.
Wilmington, N. C.
Winona, Minn.

Christianity.

CHURCHES.	Total.	CHURCHES.	Total.
Catholic Church.....	230,866,533	Armenian Church.....	1,690,000
Protestant Churches.....	143,237,625	Nestorians.....	80,000
Orthodox Greek Church.....	98,016,000	Jacobites.....	70,000
Church of Abyssinia.....	3,000,000		
Coptic Church.....	120,000	Total.....	477,080,158

He is richest that has fewest wants.

Church Dignitaries in the United States.—Continued.

Bishops.—PROTESTANT EPISCOPAL.

Alabama—Richard Hooker Wilmer.	New Hampshire—William Woodruff Niles.
“ Henry M. Jackson, Coadjutor.	New Jersey—John Scarborough.
Alaska—Peter Trimble Rowe (missionary).	“ Newark: Thomas A. Starkey.
Arizona and N. Mex.—John Mills Kendrick.	New York—Henry Codman Potter.
Arkansas—Henry Niles Pierce (missionary).	“ Central: Fred'k D. Huntington.
California—William Ford Nichols.	“ Western: Wm. D. Walker.
“ Northern: John H. D. Wingfield	“ Albany: Wm. Crosswell Doane.
(missionary).	“ L. Is.: Abram N. Littlejohn.
“ Los Angeles: J. H. Johnson.	North Carolina—Jos. Blount Cheshire, Jr.
Colorado—John Franklin Spaulding.	“ E. Carolina: Al. A. Watson.
Connecticut—John Williams.	“ Asheville (to be elected).
Dakota, N.—Vacant.	Ohio—William Andrew Leonard.
“ S.—Wm. Hobart Hare (missionary).	“ Southern: Boyd Vincent, Coadjutor.
Delaware—Leighton Coleman.	Oklahoma and Ind. Territory—Francis Key
Dist. of Col.—Washington: H. Y. Satterlee.	Brooke (missionary).
Florida—Edwin Gardner Weed.	Oregon—Benj. Wistar Morris (missionary).
“ South: William Crane Gray (mis.).	Penn.—Ozi William Whitaker.
Georgia—C. Kinloch, Nelson.	“ Pittsburg: Cortlandt Whitehead.
Illinois—Chicago: Wm. Edward McLaren.	“ Central: Nelson S. Rulison.
“ Quincy: Alexander Burgess.	Rhode Island—Thomas March Clark.
“ Springfield: G. Franklin Seymour.	South Carolina—Ellison Capers.
“ Chas. R. Hale, Coadjutor.	Tennessee—Charles Todd Quintard.
Indiana—John Hazen White.	“ Thomas F. Gailor, Coadjutor.
Iowa—William Stevens Perry.	Texas—George Herbert Kinsolving.
Kansas—Frank R. Millspaugh.	“ Dallas: Alex. C. Garrett.
Kentucky—Thomas Underwood Dudley.	“ Western: James S. Johnson (miss.).
“ Lexington: Louis W. Burton.	Vermont—Arthur C. A. Hall.
Louisiana—Davis Sessums.	Virginia—Francis McNeece Whittle.
Maine—Henry Adams Neely.	“ John B. Newton, Coadjutor.
Maryland—William Paret.	“ Southern: Alfred M. Randolph.
“ Easton: William Forbes Adams.	West Virginia—George William Peterkin.
Massachusetts—William Lawrence.	Wisconsin—Milwaukee: Isaac L. Nicholson.
Michigan—Thomas Frederick Davies.	“ Fond du Lac: Charles C. Grafton.
“ Marquette: G. M. Williams.	Washington—Olympia: W. M. Barker (mis.).
“ Western: George D. Gillespie.	“ Spokane: L. H. Wells (mis.).
Minnesota—Henry Benjamin Whipple.	Wyoming and Idaho—Ethelbert Talbot (m.).
“ Mahlon N. Gilbert, Coadjutor.	Africa—Cape Palmas: S. D. Ferguson (mis.).
“ Duluth: J. D. Morrison (mission-	China—Frederick R. Graves (missionary).
ary-elect).	Japan—John McKim (missionary).
Mississippi—Hugh Miller Thompson.	Charles C. Penick, late Bishop of Cape Pal-
Missouri—Daniel Sylvester Tuttle.	mas, Africa. Retired.
“ West: Edward Robert Atwill.	S. I. J. Schereschewsky, late Bishop of
Montana—Leigh R. Brewer (missionary).	Shanghai, China. Retired.
Nebraska—George Worthington.	Thomas Augustus Jagger, Bishop of South-
“ La Platte: Anson R. Graves (mis)	ern Ohio. Retired.
Nevada, Utah and W. Col.—Abiel Leonard	Channing Moore Williams, late Bishop of
(missionary).	China and Japan. Retired.

METHODIST EPISCOPAL.

Thomas Bowman,	St. Louis, Mo.	William Taylor,	Mis. Bish. for Africa
Randolph S. Foster,	Roxbury, Mass.	John H. Vincent,	Topeka, Kan.
Stephen M. Merrill,	Chicago, Ill.	James N. Fitzgerald,	St. Louis, Mo.
Edward G. Andrews,	New York City.	Isaac W. Joyce,	Minneapolis, Minn.
Henry W. Warren,	Denver, Col.	John P. Newman,	San Francisco, Cal.
Cyrus D. Foss,	Philadelphia, Pa.	Daniel A. Goodsell,	Chattanooga, Tenn.
John F. Hurst,	Washington, D. C.	James M. Thoburn,	Mis. Bish. for India.
William X. Ninde,	Detroit, Mich.	Charles C. McCabe,	Fort Worth, Tex.
John M. Walden,	Cincinnati, Ohio.	Earl Cranston,	Portland, Ore.
Willard F. Mallalieu,	Boston, Mass.	Joseph C. Hartzell,	Mis. Bish for Africa
Charles H. Fowler,	Buffalo, N. Y.		

METHODIST EPISCOPAL CHURCH, SOUTH.

John C. Keener,	New Orleans, La.	E. R. Hendrix,	Kansas City, Mo.
Alpheus W. Wilson	Baltimore, Md.	C. B. Galloway,	Jackson, Miss.
J. C. Granbery,	Ashland, Va.	J. S. Key,	Sherman, Tex.
R. K. Hargrove,	Nashville, Tenn.	O. P. Fitzgerald,	Nashville, Tenn.
W. W. Duncan,	Spartanburg, S. C.		

The cowl does not make the monk.

Church Dignitaries in the United States.—Continued.**REFORMED EPISCOPAL.**

Chas. Edward Cheney, Chicago, Ill.	P. F. Stevens, Orangeburg, S. C.
William R. Nicholson, Philadelphia, Pa.	James A. Latané, Baltimore, Md.
Edward Cridge, Victoria, B. C.	Edward Wilson, Metuchen, N. J.
Samuel Fallows, Chicago, Ill.	Thomas W. Campbell, Brooklyn, N. Y.

The next triennial convention of the Protestant Episcopal Church will meet at Washington, D. C., in October, 1898.

The next quadrennial general conference of the Methodist Episcopal Church will be held May 2, 1900, the place to be determined by the book committee.

The next general conference of the Methodist Episcopal Church, South, will be held at Baltimore, Md., May 5, 1898.

Church Dignitaries in Canada.**Church of England in Canada.****ARCHBISHOPS.**

- Most Rev. R. Machray, D. D., LL. D., D. C. L., Archbishop of Rupert's Land and Primate of all Canada; Prelate of the Order of St. Michael and St. George.
 " " J. T. Lewis, D. D., LL. D., D. C. L., Archbishop of Ontario and Metropolitan of the Ecclesiastical Province of Canada.

BISHOPS.

Rt. Rev. W. C. Bompas, D. D., Selkirk.	Rt. Rev. F. Courtney, D. D., S. T. D., Nova Scotia.
" " Llewelyn Jones, D. D., Newfoundl'd	" " W. D. Reeve, D. D., Mackenzie Riv.
" " W. B. Bond, D. D., LL. D., Montreal.	" " A. Hunter Dunn, D. D., Quebec.
" " A. Sweatman, D. D., D. C. L., Toronto	" " W. W. Perrin, D. D., Columbia.
" " W. Ridley, D. D., Caledonia.	" " J. A. Newnham, D. D., Moosonee.
" " H. T. Kingdon, D. D., D. C. L., Frederic'n	" " John Dart, D. D., North Westminster.
" " M. S. Baldwin, D. D., Huron.	" " J. P. DuMoulin, M. A., D. C. L., Niagara
" " R. Young, D. D., D. C. L., Athabasca	" " J. Grisdale, D. D., D. C. L., Qu'Appelle
" " C. Hamilton, D. D., D. C. L., Ottawa.	
" " W. C. Pinkham, D. D., D. C. L., Saskatchewan and Calgary.	

GENERAL SYNOD OF CANADA.

Comprising Clerical and Lay Representatives of all the dioceses in Canada.

ECCLESIASTICAL PROVINCE OF CANADA.

Comprising the Dioceses of Toronto, Niagara, Huron, Ontario, Montreal, Quebec, Nova Scotia, Fredericton, Algoma and Ottawa.

Most Rev. J. T. Lewis, D. D., LL. D., D. C. L., Archbishop of Ontario.

Rev. K. MacLennan, Levis, Clerk Synod of Montreal and Ottawa.

Rev. John Gray, M. A., D. D., Orillia, Clerk Synod of Toronto and Kingston.

Rev. W. Cochrane, D. D., Brantford, Clerk Synod of Hamilton and London.

Rev. S. C. Murray, Port Arthur, Ontario, Clerk Synod of Manitoba and N. W. Ter

Rev. John A. Logan, Union, Clerk Synod of British Columbia.

Rev. H. T. Barnaby, D. D., Corinth, Mich., Bishop United Brethren in Christ.

BAPTIST CHURCH IN CANADA.

President, Rev. T. S. Johnson, London.

Vice president, A. A. Ayer, Esq., Montreal.

Sec. V. Pres., John Stark, Esq., Toronto.

Sec., Rev. D. M. Mihill, M. A., B. D., London.

Board of Pub., A. Blue, Esq., Toronto.

CONGREGATIONAL CHURCH IN CANADA.

Chairman, Rev. J. I. Hindley, Ph. D., Forest

Sec. Treas., Rev. J. P. Gerrie, B. A., Toronto.

Statis.-Sec., Rev. D. S. Hamilton, B. A., Mont'l

Lay by something for a rainy day.

Church Dignitaries in Canada.—Continued.

THE ROMAN CATHOLIC CHURCH IN CANADA. (Hierarchy.)

Province of Halifax.

- a* Mt. Rev. C. O'Brien, Halifax.
b Rt. Rev. J. Cameron, Antigonish.
b Rt. Rev. J. C. McDonald, Charlottetown.
b Rt. Rev. J. Rogers, Chatham.
c Rt. Rev. John Sweeny, St. John.

Province of Kingston.

- a* Mt. Rev. J. V. Cleary, Kingston.
b Rt. Rev. Alex McDonell, Alexandria.
b Rt. Rev. R. A. O'Connor, Peterborough.

Province of Montreal.

- a* Mt. Rev. E. C. Faber, Montreal.
b Rt. Rev. L. Z. Moreau, St. Hyacinth.
b Rt. Rev. L. Decelles, Coad., St. Hyacinth.
b Rt. Rev. Paul Larocque, Sherbrooke.
b Rt. Rev. J. M. Emard, Valleyfield.

Province of Ottawa.

- a* Mt. Rev. J. T. Duhamel, Ottawa.
c Rt. Rev. N. Z. Lorrain, Pontiac.

Province of Quebec.

- a* His Em. E. A. Cardi'l Taschereau, Quebec
a Archbishop. *b* Bishop. *c* Vicar apostolic.

- b* Mt. Rev. L. N. Begin, Coad., Quebec.
b Rt. Rev. M. T. Labrecque, Chicoutimi.
b Rt. Rev. Elphege Gravel, Nicolet.
b Rt. Rev. A. A. Blais, Rimouski.
b Rt. Rev. L. F. Lafleche, Three Rivers.
a Rt. Rev. M. T. Labrecque, St. Laurent.

Province of St. Boniface.

- a* Mt. Rev. L. Ph. Langevin, St. Boniface.
b Rt. Rev. Paul Durieu, N. Westminster.
c Rt. Rev. V. J. Grandin, St. Albert.
c Rt. Rev. E. Girouard, { Athabaska-
c Rt. Rev. J. Clut, Coad., { Mackenzie.
b Rt. Rev. Albert Pascal, Saskatchewan.

Province of Toronto.

- a* Mt. Rev. John Walsh, Toronto.
b Rt. Rev. T. J. Dowling, Hamilton.
b Rt. Rev. D. O'Connor, London.

Newfoundland.

- a* Mt. Rev. R. McDonald, Harbor Grace.
b Rt. Rev. M. F. Howley, St. John.
b Rt. Rev. N. McNeil, St. George.

METHODIST CHURCH IN CANADA.

- Gen. Supt., Rev. Albert Carmen, D. D.
 Pres. London Con., Rev. George Jackson.
 Pres. Hamilton Con., Rev. Jas. Van Wyck.
 Pres. Bay Quinte Con., Rev. T. M. Cambbell.
 Supt. Missions Manitoba and N. W. Con.,
 Rev. J. Woodsworth, Brandon, Man.
 Pres., Rev. G. W. Dean, Prairie, Portage, Ia.
 Pres. N. Scotia Con., Rev. John Johnson.
 Bishop Evangel. Assn. of N. A., Rev. W.
 Horn, Cleveland, Ohio.
 Sec., Rev. J. G. Sitt, Campden, Ont.
 Supt. British M. E. Church, Rev. Chas. A. Washington, 94 Queen's St., W. Toronto, Ont.
 Presiding Bishop Reformed Episcopal Ch., Rt. Rev. T. W. Campbell, D. D., Brooklyn, N. Y.

Universalist Church:

- Pres., J. M. Mallory, Bloomfield.
 Treas., Thomas Theal, Fulton, O.
 Sec., B. Johnson, West Lake, Ont.

Presbyterian Church:

- Moderator, Rev. D. M. Gordon, D. D., Hali'x
 Clerks, { Rev. Robt. Campbell, Montreal.
 { Rev. Robt. H. Warden, Toronto.
 Synod of the Maritime Provinces:
 Cl'k, Rev. T. Sedgwick, Tatamagouche, N. S.

FREE METHODIST CHURCH IN CANADA.

General Superintendents: Revs. E. P. Hart, G. W. Coleman and B. R. Jones.

Dist. Elders, E.—Rev. James Craig, Uxbridge, Ont.; Rev. A. Sims, 630 Princess Street, Kingston, Ontario.

Dist. Elders, W.—Rev. W. C. Walls, Kelvin, Ont.; Rev. J. M. Eagle, Ridgeway, Ont.

Sec. of Conference, E.—Rev. W. H. Wilson, 60 Allen Avenue, Toronto, Ont.

Sec. of Conference, W.—Rev. J. M. Eagle, Ridgeway, Ont.

Treasurer of Conference, E.—Rev. R. Burnham, Trent Bridge, Ont.

Treasurer of Conference, W.—Rev. W. C. Walls, Kelvin, Ont.

China Inland Mission, 632 Church Street, Toronto, Canada:

Secretary, Rev. F. A. Steven.

Gen. Director, Rev. J. Hudson Taylor.

The most numerous denomination of Protestants is supposed to be the Lutheran, which is very strong in northern Europe, and is estimated to number 42,000,000 members. Next comes the Anglican Church, with 20,000,000 members.

The King James version of the Bible contains 3,566,480 letters, 773,446 words, 31,173 verses, 1,189 chapters, and 66 books: The middle book is Micah; the middle (and smallest) chapter Psalm 117; the middle verse the 8th of the 118th Psalm.

Boast not thyself of to-morrow,

Statistics of the Churches.

MINISTERS, CHURCHES AND COMMUNICANTS IN 1895 AND 1896 IN
UNITED STATES ONLY.

Compiled for the *American Agriculturist* Year Book, by Dr. H. K. Carroll of the
New York Independent.

DENOMINATIONS.	Ministers.	Churches.	Communi- cants or Members.
Adventists:	1896-7	1896-7	1896-7
1. Evangelical.....	34	30	1,147
2. Advent Christians.....	912	610	26,500
3. Seventh Day.....	256	1,258	45,109
4. Church of God.....	19	29	647
5. Life and Advent Union.....	50	28	1,018
6. Churches of God in Jesus Christ.....	94	95	2,872
Total Adventists, 6 divisions.....	1,365 1,362	2,050 1,993	77,293 73,312
Baptists:			
1. Regular (North).....	27,259	40,658	3,824,033
2. Regular (South).....			
3. Regular (Colored).....			
4. Six Principle.....	24	18	937
5. Seventh day.....	117	105	9,173
6. Freewill.....	1,335	1,514	86,668
7. Original Freewill.....	120	167	12,000
8. General.....	360	430	22,500
9. Separate.....	19	24	1,593
10. United.....	25	204	13,203
11. Baptist Church of Christ.....	80	152	8,254
12. Primitive.....	2,130	3,530	126,000
13. Old Two-Seed-in-the-Spirit Predestinarian.....	300	473	12,851
Total Baptists, 13 divisions.....	31,757 33,291	47,275 46,871	4,117,229 4,068,539
Brethren (River):			
1. Brethren in Christ.....	128	78	2,688
2. Old Order, or Yorker.....	7	8	214
3. United Zion's Children.....	20	25	525
Total River Brethren, 3 divisions.....	155 155	111 111	3,427 3,427
Brethren (Plymouth):			
1. Brethren (I).....	....	109	2,289
2. Brethren (II).....	....	88	2,419
3. Brethren (III).....	....	86	1,235
4. Brethren (IV).....	....	31	718
Total Plymouth Brethren, 4 divis'n.....	.... ....	314 314	6,661 6,661
Catholics:			
1. Roman Catholic.....	10,752	14,859	8,156,963
2. Russian Orthodox.....	13	12	13,504
3. Greek Orthodox.....	3	3	200
4. Armenian.....	7	6	335
5. Old Catholic.....	3	5	700
6. Reformed Catholic.....	8	8	1,000
Total Catholics, 6 divisions.....	10,786 10,382	14,893 14,937	8,173,602 8,014,911
Catholic Apostolic.....	95 95	10 10	1,491 1,394
Chinese Temples.....	....	47	....
Christadelphians.....	....	47	....
	....	63	1,277
	....	63	1,277

Statistics of the Churches.—Continued.

DENOMINATIONS.	Ministers.	Churches.	Communi- cants or Members.
Christians:	1896-7	1896-7	1896-7
1. Christians (Christian Connection).....	1,395	1,320	105,000
2. Christian Church South.....	105	160	15,000
Total Christians, 2 divisions.....	1896-7 1,500	1,480	120,000
	1895-6 1,485	1,480	110,250
Christian Missionary Association ...	1896-7 10	13	754
	1895-6 10	13	754
Christian Scientists.....	1896-7 3,000†	313	25,000
	1895-6 26	321	8,724
Christian Union.....	1896-7 183	294	18,214
	1895-6 183	294	18,214
Church of God (Winebrennerian)....	1896-7 450	560	36,000
	1895-6 450	560	36,000
Church Triumphant (Schweinfurth).	1896-7	12	384
	1895-6	12	384
Church of the New Jerusalem.....	1896-7 142	149	7,527
	1895-6 131	147	7,406
Communitistic Societies:			
1. Shakers.....	....	15	1,650
2. Amana.....	....	7	1,600
3. Harmony.....	....	1	250
4. Separatists.....	....	1	200
5. Altruists.....	....	1	25
6. Adonai Shomo.....	....	..	..
7. Church Triumphant (Koresban Ecclesia)....	....	5	205
Total Communitistic Societies.....	1896-7	30	3,930
	1895-6	31	3,950
Congregationalists.....	1896-7 5,475	5,842	615,220
	1895-6 5,347	5,482	602,557
Disciples of Christ.....	1896-7 5,260	9,607	1,003,672
	1895-6 5,260	9,471	923,663
Dunkards:			
1. German Baptists (Conservatives).....	1,709	755	69,250
2. German Baptists (Old Order).....	180	120	4,000
3. German Baptists (Progressive).....	243	145	10,031‡
4. Seventh-Day Baptists (German).....	5	6	194
Total Dunkards.....	1896-7 2,137	1,026	83,475
	1895-6 2,115	1,016	81,394
Evangelical Bodies:			
1. Evangelical Association.....	852	1,633	93,665
2. United Evangelical Church.....	408	521	55,118
Total Evangelical.....	1896-7 1,260	2,154	148,783
	1895-6 1,234	2,817	145,904
Friends:			
1. Friends (Orthodox).....	1,150	824	90,436
2. Friends (Hicksite).....	115	201	21,992
3. Friends (Wilburite).....	38	53	4,329
4. Friends (Primitive).....	11	9	232
Total Friends.....	1896-7 1,314	1,087	116,989
	1895-6 1,314	1,087	114,711
Friends of the Temple.....	1896-7 4	4	340
	1895-6 4	4	340
German Evangelical Protestant.....	1896-7 45	55	36,500
	1895-6 45	55	36,500
German Evangelical Synod.....	1896-7 866	1,101	186,000*
	1895-6 838	1,075	185,203
Jews:			
1. Jewish Congregations (Orthodox).....	130	328	60,500
2. Jewish Congregations (Reformed).....	160	220	79,000
Total Jews.....	1896-7 290	548	139,500
	1895-6 290	548	139,500

* Estimated. † Christian Scientists insist on these figures. ‡ 1895.

The borrower is servant to the lender.

Statistics of the Churches.—Continued.

DENOMINATIONS.	Ministers.	Churches.	Communi- cants or Members.
Latter-Day Saints:	1896-7	1896-7	1896-7
1. Church of Jesus Christ of Latter-Day Saints..	575	580	212,000
2. Reorganized Ch. of Jesus Christ of Latter- day Saints.....	1,500	431	22,000
Total Latter-Day Saints.....	2,075	1,011	234,000
	1896-7		
	2,075	1,011	234,000
Lutherans:			
<i>General Bodies.</i>			
1. General Synod ..	1,163	1,547	190,319
2. United Synod in the South.....	211	437	41,304
3. General Council.....	1,106	1,786	315,239
4. Synodical Conference.....	1,775	2,418	492,580
5. United Norwegian.....	350	1,120	110,000
<i>Independent Synods.</i>			
6. Joint Synod of Ohio.....	410	600	85,000
7. German of Iowa.....	374	798	66,273
8. Buffalo.....	25	35	4,248
9. Hauge's.....	81	215	16,027
10. Norwegian in North America.....	215	676	61,347
11. Danish in America.....	37	55	1,250
12. German Augsburg.....	23	26	4,750
13. Danish Church Association.....	42	58	3,552
14. Icelandic Synod.....	7	24	4,757
15. Immanuel.....	18	19	3,668
16. Suomal Synod.....	10	40	4,000
17. Slavonian.....	..	..	....
18. Danish Ev. Lutheran Church in America.....	35	49	4,000
19. Texas.....	44	49	7,097
Independent congregations.....	75	150	22,500
Total Lutherans.....	6,001	10,102	1,437,911
	1896-7		
	5,685	9,493	1,390,775
Waldenstromians.....	140	150	20,000
	1896-7		
	140	150	20,000
Mennonites.....	962	614	52,944
	1896-7		
	950	600	47,669
Methodists:			
1. Methodist Episcopal.....	[16,248	25,001	2,675,035
2. Union American Methodist Episcopal.....	62	60	2,642
3. African Methodist Episcopal.....	4,680	4,850	615,854
4. African Union Methodist Protestant.....	80	70	7,000
5. African Methodist Episcopal, Zion.....	2,561	1,615	492,888
6. Methodist Protestant.....	2,100	2,265	183,418
7. Wesleyan Methodist.....	600	565	18,400
8. Methodist Episcopal, South.....	5,837	13,725	1,442,665
9. Congregational Methodist.....	205	240	12,600
10. Congregational Methodist (colored).....	5	5	319
11. New Congregational Methodist.....	20	35	1,200
12. Zion Union Apostolic.....	30	32	2,346
13. Colored Methodist Episcopal.....	1,680	1,009	164,308
14. Primitive Methodist.....	72	102	6,400
15. Free Methodist.....	938	708	26,038
16. Independent Methodist.....	8	15	2,569
17. Evangelist Missionary.....	87	13	4,600
Total Methodist.....	35,283	50,423	5,658,282
	1896-7		
	34,175	49,639	5,484,513
Moravians.....	123	109	13,614
	1896-7		
	106	104	12,923
Presbyterians:			
1. Presbyterian in the United States of Amer- ica (Northern).....	6,623	7,267	923,515
2. Cumberland Presbyterian.....	1,617	2,867	193,987

Practice is the best master.

Statistics of the Churches.—Continued.

DENOMINATIONS.	Ministers.	Churches.	Communi- cants or Members.
Presbyterians :—Continued.	1896-7	1896-7	1896-7
3. Cumberland Presbyterian (colored).....	400	250	13,250
4. Welsh Calvinistic.....	105	185	12,000
5. United Presbyterian.....	812	891	108,828
6. Presbyterian in the United States (Southern),	1,349	2,788	210,539
7. Associate Church of North America.....	12	31	1,053
8. Associate Reformed Synod of the South.....	93	127	10,277
9. Reformed Presbyterian in the U. S. (Synod)...	108	107	9,400
10. Reformed Presbyterian in North America (General Synod).....	33	41	5,000
11. Reformed Presbyterian (Covenanted).....	1	4	37
12. Reformed Presbyterian in the United States and Canada.....	1	1	600
Total Presbyterians.....	1896-7 11,154	14,559	1,488,486
	1895-6 11,097	14,530	1,458,999
Protestant Episcopal:			
1. Protestant Episcopal.....	4,618	6,097	636,773
2. Reformed Episcopal.....	87||	93||	8,893||
Total Episcopal.....	1896-7 4,705	6,190	645,666
	1895-6 4,580	5,979	626,290
Reformed:			
1. Reformed in America.....	636	605	102,631
2. Reformed in the United States.....	1,000	1,663	229,100
3. Christian Reformed.....	81	123	16,740
Total Reformed.....	1896-7 1,717	2,391	348,471
	1895-6 1,662	2,355	343,981
Salvationists:			
Salvation Army.....	2,120	675	40,000
Volunteers.....	450	150	.....
Total Salvationists.....	1896-7 2,570	825	40,000
	1895-6 2,037	682	33,500
Schwenkfeldians.....	1896-7 3	4	306
	1895-6 3	4	306
Social Brethren.....	1896-7 17	20	913
	1895-6 17	20	913
Society for Ethical Culture.....	1896-7 ..	4	1,064
	1895-6 ..	4	1,064
Spiritualists.....	1896-7 ..	334	45,030
	1895-6 ..	334	45,030
Theosophical Society.....	1896-7 ..	122	3,000
	1895-6 ..	95	2,500
United Brethren:			
1. United Brethren in Christ.....	1,671	4,173	230,703
2. United Brethren (Old Constitution).....	695	853	40,332
Total United Brethren.....	1896-7 2,366	5,026	271,035
	1895-6 2,321	5,026	262,950
Unitarians.....	1896-7 525	458	70,000
	1895-6 519	455	68,500
Universalists.....	1896-7 797	825	49,025
	1895-6 800	802	47,986
Independent Congregations.....	1896-7 54	156	14,126
	1895-6 54	156	14,126
Grand total.....	1896-7 134,686	182,361	25,317,141
	1895-6 130,238	180,098	24,681,000

Religions of the World.

CREEDS.	No. Followers	CREEDS.	No. Followers
1. Christianity.....	477,080,158	5. Buddhism.....	147,900,000
2. Worship of Ancestors and Confucianism.....	256,000,000	6. Taoism.....	43,000,000
3. Hindooism.....	190,000,000	7. Shintoism.....	14,000,000
4. Mohammedanism.....	176,834,372	8. Judaism.....	7,186,000
		9. Polytheism.....	117,681,669

Sects in England.

(Evans, 1897.)

	Pastors.	Local Preachers		Pastors.	Local Preachers
Established Church.	20,495	.....	Primitive Methodist.	965	399
Baptist.....	1,718	4,385	Calvinistic Meth.....	502	16,742
Congregationalist....	2,441	5,665	U. M. Free Church...	318	3,066
Presbyterian.....	301	.....	Methodist New Con.	185	1,133
Wesleyans.....	1,774	17,065	Bible Christians.....	165	1,492

The established church provides sittings for 7,600,000, and the other nine sects seat about 7,600,000.

Canadian Church Statistics.

The following table is a comparative statement of the numbers of the leading denominations in 1881 and 1891, showing also the proportion each denomination bore to the whole population at each census:—

RELIGIONS.	Census. 1881.		Census. 1891.	
	Number.	Proportion to Total Population.	Number.	Proportion to Total Population.
Roman Catholics.....	1,791,982	41.43	1,992,017	41.21
Methodists.....	742,981	17.18	847,765	17.54
Presbyterians.....	676,165	15.63	755,326	15.63
Church of England.....	577,414	13.35	646,059	13.37
Baptists.....	296,525	6.85	303,839	6.29
Lutherans.....	46,350	1.07	63,982	1.32
Congregationalists.....	26,900	.62	28,157	.58
Disciples.....	20,193	.47	12,763	.26
Brethren.....	8,831	.20	11,637	.24
Adventists.....	7,211	.16	6,354	.13
Quakers.....	6,553	.15	4,650	.10
Protestants.....	6,519	.15	12,253	.25
Universalists.....	4,517	.10	3,186	.07
Jews.....	2,393	.06	6,414	.13
Unitarians.....	2,126	.05	1,777	.04
Salvation Army.....	.....	.....	13,949	.29
Other denominations.....	14,269	.33	33,756	.70
Not specified.....	*93,881	2.17	*89,355	1.85

* Pagans included.

Of the total number of churches, the Methodists have nearly 52 per cent, the Presbyterians and Roman Catholics 17 per cent each, the Church of England 16 per cent, the Baptists 12 per cent, leaving 6 per cent for "all others."

During the decade 1881-91, the Church of England appears to have been the most active in providing places of worship for the people, the Presbyterians coming next, the Baptists third, the Methodists fourth and the Roman Catholics fifth.

Aims of Theosophy.

The Theosophical Society of America officially declares that its principal aim and object is to form a nucleus of universal brotherhood, without any distinctions whatever. The subsidiary objects are: The study of ancient and modern religions, philosophies and sciences, and the demonstration of the importance of each study; and the investigation of the unexplained laws of nature and the psychical powers latent in man. The headquarters of the society in America are at 144 Madison Ave., New York. There are 115 branch societies.

Quit not certainty for hope.

Sunday School Statistics for the United States and Canada.

REPORTED BY E. PAYSON PORTER, STATISTICAL SECRETARY, AT SEVENTH INTERNATIONAL SUNDAY SCHOOL CONVENTION.

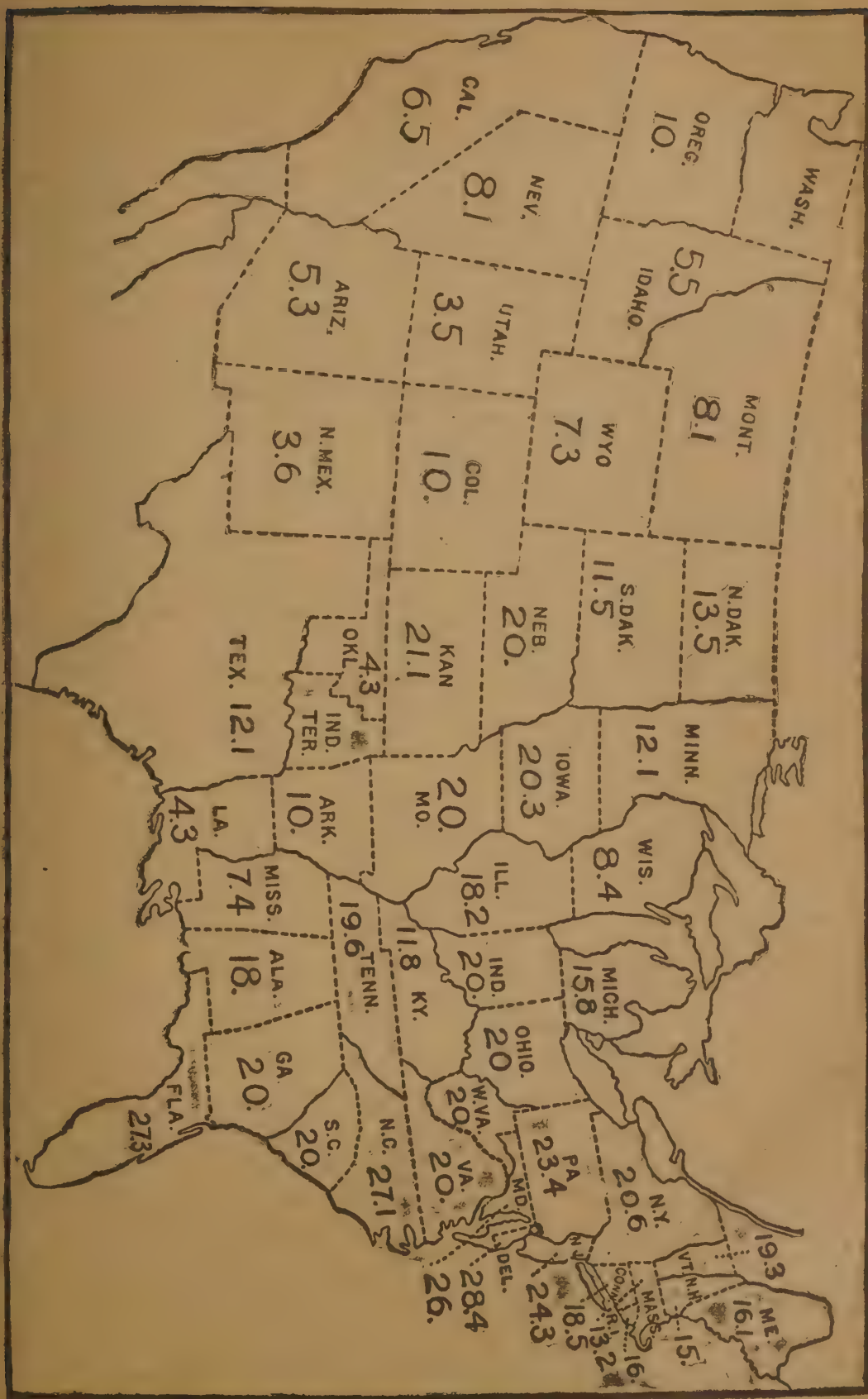
UNITED STATES.	Sunday Schools.	MEMBERSHIP.			Population Census 1890.	Per c't. of Populat'n in S. S. 1893
		Teachers and Officers.	Scholars.	Total.		
Alabama.....	3,820	23,504	203,207	226,711	1,513,017	18.0
Alaska Territory	14	52	1,100	1,152	.....	.....
Arizona Territ'y.	50	378	2,670	3,048	59,620	5.3
Arkansas.....	1,787	12,659	100,198	112,857	1,128,179	10.0
California.....	803	7,863	71,687	79,550	1,208,130	6.5
Colorado.....	485	4,699	37,220	41,919	419,198	10.0
Connecticut.....	1,050	15,269	122,138	137,407	746,258	18.5
Delaware.....	397	5,141	42,597	47,738	168,493	28.4
Dist. of Colum...	194	4,634	44,970	49,604	230,392	21.2
Florida.....	2,442	11,843	94,844	106,687	391,422	27.3
Georgia.....	6,889	59,885	310,612	370,497	1,837,353	20.0
Idaho.....	75	625	4,200	4,825	84,385	5.5
Illinois.....	7,255	83,757	610,845	694,602	2,826,351	18.2
Indian Territory	387	2,942	16,393	19,335	.....	.....
Indiana.....	4,831	50,950	371,602	422,552	2,192,404	20.0
Iowa.....	5,085	44,816	343,292	388,108	1,911,896	20.3
Kansas.....	4,581	40,293	244,256	284,549	1,347,428	21.1
Kentucky.....	2,756	27,571	192,744	220,315	1,858,635	11.8
Louisiana.....	625	5,058	37,024	42,082	1,118,587	4.3
Maine.....	1,420	12,525	93,475	106,000	661,086	16.1
Maryland.....	2,316	31,194	240,001	271,195	1,042,390	26.0
Massachusetts...	1,715	38,102	258,620	296,722	2,238,943	13.2
Michigan.....	3,880	44,917	286,083	331,000	2,093,889	15.8
Minnesota.....	1,798	17,265	140,423	157,688	1,301,826	12.1
Mississippi.....	1,614	11,767	84,677	96,444	1,289,600	7.4
Missouri.....	5,963	58,531	479,584	538,115	2,679,184	20.0
Montana.....	161	1,250	9,515	10,765	132,159	8.1
Nebraska.....	3,430	27,838	183,944	211,782	1,058,910	20.0
Nevada.....	59	868	3,342	4,210	45,761	8.1
New Hampshire.	556	6,640	49,335	55,975	376,530	15.0
New Jersey.....	2,124	39,728	311,624	351,352	1,444,933	24.3
N. M. Territory..	90	592	4,900	5,492	153,593	3.6
New York.....	8,558	122,289	1,050,738	1,173,027	5,997,853	20.6
North Carolina...	5,905	46,897	392,706	439,603	1,617,947	27.1
North Dakota....	445	2,180	22,542	24,722	182,719	13.5
Ohio.....	7,251	96,201	641,118	737,319	3,672,316	20.0
Oklahoma Ter...	45	360	2,340	2,700	61,834	4.3
Oregon.....	649	3,727	27,649	31,376	313,767	10.0
Pennsylvania....	8,941	137,023	1,092,130	1,229,153	5,258,014	23.4
Rhode Island....	316	5,178	49,422	54,600	345,506	16.0
South Carolina...	2,302	23,022	207,206	230,228	1,151,149	20.0
South Dakota....	775	5,489	32,236	37,725	328,808	11.5
Tennessee.....	4,644	41,818	302,016	343,834	1,767,518	19.6
Texas.....	3,852	29,796	240,993	270,789	2,235,523	12.1
Utah.....	119	519	6,802	7,321	207,905	3.5
Vermont.....	721	8,007	55,252	63,259	332,422	19.3
Virginia.....	3,907	43,531	283,336	326,867	1,655,980	20.0
Washington.....	1,100	7,000	58,450	65,450	349,390	18.4
West Virginia...	2,013	20,465	132,093	152,558	762,794	20.0
Wisconsin.....	1,890	18,730	120,357	139,087	1,686,680	8.4
Wyoming.....	88	551	3,924	4,475	60,705	7.3
Totals for U. S.	123,173	1,305,939	9,718,432	11,024,371	62,622,250	17.5

These statistics, in comparison with those presented at the convention of 1890, at Pittsburg, show an increase of 1,223,900 in the United States and 115,637 in Canada. No comprehensive general statistics have been gathered since 1893.

The largest book in the Bible is that of the Psalms; the largest chapter is Psalm 119; the largest verse is the 9th of the 8th chapter of Esther. The word "and" occurs 46,227 times; the word "Lord" occurs 1,855 times; the word "reverend" occurs but once, in the 9th verse of the 111th Psalm. The 21st verse of the 7th chapter of Ezra contains all the letters of the alphabet except j.

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Death pays all debts.



Sunday School Statistics for the United States and Canada.—Continued.

CANADA.	Sunday Schools.	MEMBERSHIP.			Population Census 1890.
		Teachers and Officers.	Scholars.	Total.	
Ontario.....	4,683	45,946	383,346	429,292	2,114,000
Quebec.....	715	4,867	42,433	47,300	1,488,535
Nova Scotia.....	1,372	8,961	72,704	81,665	450,396
New Brunswick.....	904	5,158	38,875	44,033	321,000
Prince Edward Island.....	234	1,335	12,770	14,105	109,500
Manitoba.....	450	2,979	23,836	26,815	152,000
British Columbia.....	28	275	2,100	2,375	.....
Totals for Canada.....	8,386	69,521	576,064	645,585	4,635,431
Newfoundland and Labrador.....	359	2,275	22,976	25,251	.....
Totals for U. S. and British Am. Provinces	131,918	1,377,735	10,317,472	11,695,207	.....

Sunday Schools of all Nations.

COMPILED FOR WORLD'S SUNDAY SCHOOL CONVENTION, ST. LOUIS, 1893.

	Sunday Schools.	Teachers.	Scholars.	Total.
EUROPE.				
England and Wales.....	37,201	585,457	5,976,537	6,561,994
Scotland.....	6,275	62,994	694,860	757,854
Ireland.....	3,584	27,740	308,516	336,256
Belgium.....	89	310	4,112	4,422
Austria.....	212	513	7,195	7,708
Denmark.....	506	3,043	55,316	58,359
Finland.....	6,853	11,534	147,134	158,668
France.....	1,450	3,800	60,000	63,800
Germany.....	5,900	34,983	749,786	784,769
Greece.....	4	7	180	187
Holland.....	1,560	4,600	163,000	167,600
Italy.....	403	654	10,969	11,623
Norway.....	550	4,390	63,980	68,370
Portugal.....	11	56	1,066	1,122
Russia.....	33	777	15,524	16,301
Spain.....	88	180	3,230	3,410
Sweden.....	5,750	17,200	242,150	259,350
Switzerland.....	1,637	6,916	113,382	120,298
European Turkey.....	35	175	1,564	1,739
ASIA.				
India, including Ceylon.....	5,548	10,715	197,754	208,469
Persia.....	107	440	4,876	5,316
Siam.....	16	64	809	873
China.....	105	1,053	5,264	6,317
Japan.....	150	390	7,019	7,409
Central Turkey.....	516	2,450	25,833	28,283
AFRICA.....				
	4,246	8,455	161,394	169,849
NORTH AMERICA.				
United States.....	123,173	1,305,939	9,718,432	11,024,371
Canada.....	8,386	69,521	576,064	645,585
New Foundland and Labrador.....	359	2,275	22,976	25,251
West Indies.....	2,185	9,673	110,233	119,906
Central America and Mexico.....	550	1,300	15,000	16,300
SOUTH AMERICA.....				
	350	3,000	150,000	153,000
OCEANICA.				
Australasia.....	4,766	54,211	586,029	640,240
Fiji Islands.....	1,474	2,700	42,909	45,609
Hawaiian Islands.....	230	1,413	15,840	17,253
Other Islands.....	210	800	10,000	10,800
WORLD.....	224,562	2,239,728	20,268,933	22,508,661

There are none so blind as those who won't see.

Religious and Temperance Societies.

Woman's Christian Temperance Union. Corres. Sec., Mrs. K. L. Stevenson, The Temple, Chicago, Ill. International Sec., Miss Agnes Slack, Memorial Hall, London, Eng. Object, temperance work by women. Members, 500,000. Gain during 1896, 15,888.

Church Temperance Society. Episcopal. Includes several juvenile societies. General Secretary, Robert Graham, Church Mission House, New York City.

White Cross Society. Object, to promote social purity. Sec., W. R. Smith, 224 Waverley Place, New York City.

National Christian League for the Promotion of Social Purity. Corres. Sec., I. N. Miller, 33 E. 22d Street, New York City.

The Reform Bureau. Object, to promote various national reforms. Sec., Rev. F. D. Power, 210 Delaware Avenue, Washington, D. C.

Christian Alliance. Sec., Rev. F. W. Farr, 692 8th Avenue, New York. Undenominational, Object, Christian missions.

Brotherhood of the Kingdom. Interdenominational. Corres. Sec., Walter Rauschenbusch, 407 W. 43d Street, New York City.

Brotherhood of Christian Unity. Undenominational. Sec., T. F. Seward, 18 Wall Street, New York City.

Society of St. Vincent de Paul. Roman Catholic. Object, charity. Sec., Thomas M. Mulry, 2 Lafayette Place, New York City.

American Unitarian Association. Sec., Rev. George Bachelor, Cambridge, Mass.

Universalist General Convention. Sec., Rev. G. L. Demorest, Manchester, N. H.

Congregational National Council. Sec., Rev. H. A. Hazen, D. D., Auburndale, Mass.

American Bible Society. Pres., Hon. E. L. Fancher, New York City. Number of Bibles distributed in past 80 years, 61,705,841 copies.

National Spiritualist Association, United States and Canada. Sec., F. B. Woodbury, Washington, D. C. Members, 150,000. Number of Spiritualists in the United States and Canada estimated at 1,500,000. International congress of Spiritualists at Rochester, N. Y., March 21-31, 1898.

Baptist Congress. Object, discussion of current religious topics. Corres. Sec., Rev. T. A. K. Gessler, D. D., 719 St. Nicholas Avenue, New York City.

Salvation Army. Undenominational. Object, Christian missions. International. Commander in Chief, William Booth, 101 Queen Victoria Street, London, E. C. Eng.

Volunteers of America. American. Object, Christian missions. Commander, Ballington Booth, Corner Union Square and E. 16th Street, New York, No. of Posts, 130.

Mormons or Latter Day Saints. First President, Wilford Woodruff, Salt Lake City, Utah. Members, 300,000.

Roman Catholic Total Abstinence Union. Object, to repress intemperance. Members, 15,390. Pres. and Sec., Rev. P. P. Doyle, New York City.

YOUNG PEOPLE'S RELIGIOUS SOCIETIES.

Young People's Society of Christian Endeavor. International. Gen. Sec., John Willis Baer, Office, 646 Washington Street, Boston, Mass. Membership 3,000,000.

Epworth League, Methodist Episcopal. Gen. Sec., Rev. E. A. Schnell, 57 Washington Street, Chicago, Ill. Membership, 1,500,000.

Epworth League of M. E. Church, South. Gen. Sec., Rev. S. A. Steel, Nashville, Tenn. Membership, 157,500.

Young Men's Christian Association has for its object the spiritual, mental, social and physical well being of young men. It was founded in 1844. There are now 6,583 centers throughout the world, with a total membership of 511,970. The total membership of the 1,455 American associations is 263,298; they occupy 315 buildings of their own, valued at \$16,759,800, and have a total net property of \$16,655,014, including 670 libraries, containing 479,563 volumes. They employ 1,248 general secretaries and other paid officials, and expended last year for current expenses—local, state and national—\$250,170. The office of the International committee is at 40 E. 23d Street, New York City. Gen. Sec., Richard C. Morse.

Young Woman's Christian Association numbers about 150,000 young women in all parts of the world. Office of the World's Y. W. C. A. is at 17 Old Cavendish Street, London. Its objects include religious and social work for and by young women. Homes, meetings, educational classes and gymnastics are among the usual features. Gen. Sec., for the United States, Miss Effie K. Price, 1,004 Champlain Building, 126 State Street, Chicago, Ill. Membership in America, 35,000.

King's Daughters and Sons. Interdenominational. Gen. Sec., Mrs. M. L. Dickenson, 156 Fifth Avenue, New York City. Membership, 300,000.

Daughters of the King. Episcopal. Sec., Miss E. L. Ryerson, 520 E. 87th Street, New York City.

Baptist Young People's Union. Gen. Sec., Rev. F. L. Wilkins, D. D., 122 Wabash Avenue, Chicago, Ill.

Don't offer to teach fish,

Religious and Temperance Societies.—Continued.

Young People's Christian Union. Corres. Sec., Rev. H. F. Shupe, Dayton O. Membership, 71,000.
 Luther League of America. Lutheran. Gen. Sec., H. C. Olsen, Chicago, Ill. Membership, 55,000.
 Brotherhood of St Andrew, Young Men, Episcopal. Gen. Sec., J. W. Wood, 281 4th Avenue, New York City.
 Brotherhood of Philip and Andrew, Young Men. Interdenominational. Gen. Sec., E. M. Folsom, 93 W. 103d Street, New York City. Membership, 8,000.

Bible Societies.

The total number of Bibles and Testaments distributed by 80 Bible societies in the world, since the foundation of the British and Foreign societies in 1803, has been over 220,000,000 copies. The following is a partial list of the principal and oldest Bible societies.

Society for Promoting Christian Knowledge, organized.....	1698
Society for Propagating the Gospel in Foreign Parts, organized.....	1701
Society in Scotland for Promoting Christian Knowledge, organized.....	1709
Society for Promoting Religious Knowledge among the Poor, organized.....	1750
Naval and Military Bible Society, organized.....	1780
Sunday School Society, organized.....	1785
French Bible Society, organized.....	1792
British and Foreign Bible Society, begun 1803, organized.....	1804
Hibernian Bible Society, organized.....	1806
First Bible Society in the United States, organized at Philadelphia	1808
Connecticut Bible Society, organized at Hartford.....	May 1809
Massachusetts Bible Society, organized at Boston.....	July 1809
New York Bible Society, organized at New York.....	November 1809
New Jersey Bible Society, organized at Princeton, N. J.....	December 1809
Con. of 35 Bible Societies met at New York and organized the Amer. Bible So.....	May 1816
A bill from Pope Pius VII against Bible Societies appeared in.....	1817
Bible Association of Friends in America, organized.....	1828
American and Foreign Bible Society, organized.....	1837
American Bible Society, incorporated.....	March 25 1841
American Bible Union, organized.....	1850
Bible House at Astor Pl., N. Y. City, completed and occupied by Am. Bible So. May	1853
Foundation Stone of new Central Hall, of British and Foreign Bible Society laid in Queen Victoria Street, London.....	June 11 1866

Religious Books of the World.

The seven religious books of the world are the Koran of the Moham-medans, the Eddas of the Scandinavians, the Try Pitikes of the Buddhists, the Five Kings of the Chinese, the Three Vedas of the Hindoos, the Zendavesta of the Persians, and the Scriptures of the Christians. The Koran is of most recent date, being not older than the seventh century of the Christian era. The Eddas of the Scandinavians were first published in the fourteenth century. The author of the Pitikes of the Buddhists lived and died in the sixth century B C. The Five Kings of the Chinese cannot be traced to a period earlier than the eleventh century B C. The Three Vedas are the most ancient books of the Hindoos, and in the opinion of eminent authorities they are not older than eleven centuries B C. Zoroaster, whose sayings are contained in the Zendavesta, was born in the twelfth century B C. Moses lived and wrote his Pentateuch fifteen centuries B C.

Most haste, least speed,

The Christian Endeavor Movement.

The most numerous and powerful organization of young people is the Society of Christian Endeavor, first organized at Portland, Me, in 1881. Its object is to train young people for the duties of their own church and denomination. The motto is, "For Christ and the church." Among the distinctive features are the pledge required of each active member, and the elaborate committee system which interacts like a series of cog wheels.

From the beginning the growth of the movement has been remarkable. In 1882 there were 481 members; in 1883, 2870; in 1884, 8905; in 1885, 10,964; in 1886, 50,000; in 1887, 140,000; in 1888, 300,000; in 1889, 500,000; in 1890, over 660,000; in 1891, over 1,000,000; in 1892, 1,400,000; in 1893, 1,650,000; in 1894, 2,000,000; in 1895, 2,568,000; in 1896, 2,816,620; and in 1897, 3,000,000. The number of local societies in 1897 was 50,747. Pennsylvania leads among the states with 3443 local societies; New York, 3049; Ohio, 2383; Illinois, 2013; Ontario, 1783; Indiana, 1387; Iowa, 1336; and Michigan, 1071. England has 3925 societies; Australia, 2124; Scotland, 433; Wales, 311; India, 250; Ireland, 169; Madagascar, 93; France, 68; Mexico, 100; Japan, 66; West Indies, 63; Turkey, 41; China, 53; Africa, 52; Germany, 32; and so on through a long list, with a total of 7919 societies. In addition, all Canada has 3390 societies.

At the world's convention at San Francisco, Cal, in 1897, there were present 24,000 registered delegates. The convention of 1898 will be held at Nashville, Tenn, in July.

DIRECTORY OF THE UNITED SOCIETY,
646 Washington street, Boston, Mass.

President, Rev. Francis E. Clark, D.D.

General Secretary, John Willis Baer.

Treasurer, William Shaw.

Trustees (representing different evangelical denominations): Rev. C. A. Dickinson, D.D., Rev. J. L. Hill, D.D., Rev. R. W. Brokaw, Rev. H. B. Grose, Rev. Nehemiah Boynton, D.D., W. H. Pennell, Hon. W. J. Van Patten, Rev. John Henry Barrows, D.D., Rev. Wayland Hoyt, D.D., Hon. John Wanamaker, Rev. T. S. Hamlin, D.D., Rev. Wm. Patterson, Rev. P. S. Henson, D.D., Rev. H. K. Carroll, D.D., LL. D., Rev. J. T. Beckley, D.D., Rev. W. H. McMillan, D.D., Bishop Samuel Fallows, D.D., Rev. W. J. Darby, Rev. M. Rhodes, D.D., Rev. W. W. Andrews, Ph.D., Rev. Gilby C. Kelly, D.D., President William R. Harper, Ph.D., Rev. David J. Burrell, D.D., Rev. J. Z. Tyler, D.D., Rev. J. F. Cowan, D.D., Rev. E. R. Dille, D.D., Prof. James L. Lowe, Rev. J. M. Lowden, Rev. Canon J. B. Richardson, Rev. Rufus W. Miller, Rev. M. M. Binford, Rev. H. F. Shupe, Bishop B. W. Arnett, D.D., Bishop Alexander Walters, D.D., Rev. U. F. Swengel, Rev. W. H. Vogler.

Auditor, F. H. Kidder, Esq.

The Presbyterian Alliance throughout the world is an organization which represents ten Reformed and Presbyterian churches in the United States, with constituency of 6,000,000; the Presbyterian church in Canada with a constituency of 600,000, and more than 80 different denominations on the five continents other than North America, with a constituency of at least 20,000,000 persons.

Taking the total population of Canada, there is a church provided for every group of 461 persons. Taking the several denominations, the Roman Catholics have one church for every 1,115 of their persuasion, the Church of England one for every 386, the Methodists one for 251, the Presbyterians one for 428, and the Baptists one for 240,

Great gifts are for great men.

TEMPERANCE.

Revenue Receipts and Consumption of Liquors.

The consumption of liquors is measured quite closely by the revenue returns, since the tax is paid not when the liquor is made but when it is withdrawn for consumption. Liquor taken out for export or for scientific purposes is not subject to the regular tax and is not counted as withdrawn for consumption. To the amount given below must be added the amount imported, to obtain the amount drank in this country. It has been estimated that the retail consumer pays at the rate of \$5 per gal. for spirits and 50c per gallon for beer and similar beverages.

Revenue Receipts from Liquors.

Receipts during fiscal years, ending June 30.

LIQUORS TAXED.	Mils. of dols.	
	1896	1897
Spirits distilled from fruit	\$1.6	\$1.3
From other material.....	73.7	75.7
Ale, beer, porter, etc.....	33.1	31.8
Tot., includ'g special taxes	114.4	114.5

Withdrawn for Use.

Quantity withdrawn during the past two fiscal years was as follows:

	In Millions.	
	1896	1897
Spirits dist. from fruit, gals	1.4	1.1
From other materials, gals	67.0	68.8
Beer, ale, porter, etc., bbls.	35.8	34.4

Consumption of Beverages in the United States.

According to the official abstract, the per capita consumption of the beverages, tea, coffee, foreign and homemade spirits, wines and malt liquors, was as follows for each alternate year 1891-1895 and for 1896, within the United States.

	Tea.	Coffee	Spi'ts.	Wine.	Malt Liq'rs.
	Lbs.	Lbs.	Gals.	Gals.	Gals.
1881	1.54	8.25	1.38	.47	10.50
1883	1.30	8.91	1.46	.48	12.21
1885	1.18	9.60	1.26	.39	12.26
1887	1.49	8.53	1.21	.55	13.99
1889	1.29	9.16	1.32	.56	14.60
1891	1.29	7.99	1.42	.45	17.16
1893	1.32	8.24	1.51	.48	18.04
1895	1.38	9.22	1.12	.28	16.35
1896	1.31	8.04	1.00	.26	15.16

Consumption of Beverages in Great Britain.

The comparison following shows the consumption per head of population of coffee, tea, wine, home-made and imported spirits, beer and tobacco in Great Britain and Ireland for each alternate year from 1881 to 1895:

	Coffee.	Tea.	Wine.	Spirits.	Beer.	Tobacco.
	Lbs.	Lbs.	Gals.	Gals.	Gals.	Lbs.
1881	0.89	4.58	0.45	1.06	27.79	1.41
1883	0.89	4.82	0.40	1.04	27.25	1.45
1885	0.91	5.06	0.38	0.96	27.09	1.46
1887	0.80	5.02	0.37	0.93	27.27	1.45
1889	0.76	4.99	0.38	0.96	28.88	1.51
1891	0.76	5.36	0.39	1.04	30.16	1.61
1893	0.69	5.41	0.37	0.98	29.59	1.63
1895	0.70	5.67	0.37	1.00	29.65	1.67

Retail Cost of the Drink Traffic, and Other Expenditures.

YEAR ENDING JUNE 30.	Popula-tion June 1. Millions.	Retail Cost of Liquor Traffic.		Per Capita.			
		Total. Millions.	Per capita.	National Debt.	Expenditures for Gov'n'm't.	Merchandise.	
						Imported.	Exported.
1876	45	\$484	\$10.72	\$45.66	\$5.87	\$10.29	\$11.64
1877	46	482	10.40	43.56	5.21	9.49	12.72
1887	59	763	13.00	20.03	4.47	11.65	11.98
1893	67	1,079	16.15	12.55	6.87	12.64	12.44
1895	70	962	13.79	12.93	5.11	10.48	11.37
1897	71	970	12.25	11.93	5.14	10.77	14.80

b. Net ordinary.

Wishes never filled the bag.

Manufacture of Liquors, Census Year 1890.

INDUSTRIES.	Establishments.	Capital.	Average Employees.	Wages.	Products.
Liquors, distilled.....	440	\$31,006,176	5,343	\$2,814,889	\$104,197,869
Liquors, vinous.....	236	5,792,783	1,282	480,733	2,846,148
Liquors, malt.....	1,248	232,471,290	34,800	28,382,544	182,731,622
Malt.....	202	24,293,864	3,694	2,103,200	23,442,559
Bottling.....	716	5,656,705	3,929	2,271,355	13,583,418
Total.....	2,842	\$299,220,818	49,048	\$36,052,721	\$326,801,616

Importation of Liquors.

YEAR ENDING JUNE 30.	Distilled Spirits.		Wines.		Malt Liquors.	
	Values.	Ordinary Duty.	Values.	Ordinary Duty.	Values.	Ordinary Duty.
1890	\$2,171,935	\$3,129,424	\$8,786,623	\$4,662,004	\$1,456,883	\$726,653
1891	2,221,149	3,437,571	9,592,660	5,229,834	1,738,607	835,922
1892	1,721,608	2,948,715	9,246,276	5,058,662	1,753,423	833,124
1893	1,912,721	3,183,634	9,687,949	5,144,039	1,924,170	928,944
1894	1,452,317	2,447,657	6,856,630	3,706,387	1,543,848	776,200
1895	2,092,137	2,594,316	7,232,869	3,697,826	1,634,445	637,512
1896	2,137,634	.....	7,107,005	.....	1,665,016	.....
1897	2,986,556	.....	6,862,300	.....	1,560,293	.....

Persons in Occupations Wholly or Largely Connected with the Liquor Traffic, 1890.

Extra Census Bulletin No. 99.

OCCUPATIONS.	No. of Persons Engaged,			Per cent in each Occupation.	
	Total.	Males.	Females	Males.	Females
Brewers and malters.....	20,349	20,277	72	99.65	0.35
Distillers and rectifiers.....	3,349	3,340	9	99.73	0.27
Weighers, gaugers and measurers.....	3,897	3,842	55	98.59	1.41
Dealers in wines and liquors, wholesale.....	3,657	3,609	48	98.69	1.31
Dealers in wines and liquors, retail.....	10,090	9,945	145	98.56	1.44
Saloon keepers.....	71,412	69,137	2,275	96.81	3.19
Bartenders.....	55,807	55,660	147	99.74	0.26
Hotel keepers.....	44,140	38,825	5,315	87.96	12.04
Restaurant keepers.....	19,301	16,885	2,416	87.48	12.52
Dealers in drugs and chemicals, retail..	46,411	45,672	739	98.41	1.59

Liquor Traffic in Canada.

The Dominion has a general law by which cities and counties may vote on the liquor question on petition of 25 per cent of the voters. If the temperance advocates win, the retail sale of liquor is prohibited except for medicinal, mechanical and sacramental purposes and then only on proper certificates. Many of the counties of the Dominion have adopted the above law. In others, the Provincial laws are in force.

Canadian Liquor Laws.

PROVINCE.	Kind of Law.	Cost of License.	Special Features.
Nova Scotia.....	Municipal option	\$100 to \$300.....	Local inspectors of licenses.
New Brunswick..	"	\$50 to \$400.....	In cities 1 license to 1200 inhab.
Prince Edward Is.	No license issued	.....	Street police supervision.
Quebec.....	Lim. local option	\$30 to \$800.....	Fees taken by Province.
Ontario.....	Lim. high license	\$30 to \$200.....	Board of Commissioners.
Manitoba.....	Like that of Ont.	\$100 to \$250.....	Fees go to Province.
N. W. Territory..	State license.....	\$200.....	" " "
British Columbia.	"	\$60 to \$200 per year	Cities levy additional fees.

Much care brings gray hair.

Percentage of Alcohol in Wines and Liquors.

LIQUOR.	Per c't.	LIQUOR.	Per c't.	LIQUOR.	Per c't.	LIQUOR.	Per c't.
Beer.....	4.0	Tokay.....	11.0	Sherry.....	19.0	Chartreuse..	43.0
Porter.....	4.5	Rhine.....	11.0	Vermouth...	19.0	Gin.....	51.6
Ale.....	7.4	Bordeaux...	11.5	Malmsey....	19.7	Brandy.....	53.4
Cider.....	8.6	Hock.....	11.6	Madeira.....	21.0	Rum.....	53.7
Perry.....	8.8	Claret.....	13.3	Port.....	23.2	Ir'h Whisky.	53.9
Elder.....	9.3	Burgundy...	13.6	Curacoa.....	27.0	Sc'h Whisky.	54.3
Mosselle....	10.2						

Where the Money Goes.

Foreign Missions.....	\$ 5,000,000
Brick.....	85,000,000
Potatoes.....	110,000,000
Churches.....	125,000,000
Public Education.....	165,000,000
Silk Goods.....	165,000,000
Furniture.....	175,000,000
Sugar and Molasses.....	225,000,000
Woolen Goods.....	250,000,000
Boots and Shoes.....	335,000,000
Flour.....	345,000,000
Printing and Publishing...	370,000,000
Cotton Goods.....	380,000,000
Sawed Lumber.....	495,000,000
Tobacco.....	515,000,000
Iron and Steel.....	560,000,000
Meat.....	870,000,000
Liquors.....	1,080,000,000

This chart, taken from the handbook of Funk & Wagnalls, New York, shows the large amount paid for liquor as compared with the cost of other chief items. The cost of liquors and tobacco is based upon the internal revenue reports for 1893. During the four years of hard times since 1893 the amount paid for liquor has been less than the sum in that year.

The retail cost of intoxicating liquors used yearly in Great Britain is estimated at over \$700,000,000. The average cost per inhabitant is placed at over \$15.

The direct annual cost of intoxicating drinks to the people of the United States has been estimated as more than twice the revenue of the national government and eight or nine times the cost of all the public schools.

Original Package Decision.

In 1890 the supreme court of the United States, in a case on appeal from Iowa, decided that the transportation of liquor through, and the sale of liquor in original packages could not be prohibited in any of the states or territories.

WORLD'S BREWERIES.

The total number of the world's breweries is stated by a French statistician at 51,000. There are 26,240 in Germany, 12,874 in England, 2300 in the United States, 1942 in Austria, 1270 in Belgium, 1044 in France.

All things come to those who wait.

The Prohibition Movement.

Since 1850, prohibition has attracted a share of public attention as a state and local issue. In state politics the object of the prohibitionists is to prohibit by law the manufacture and sale of intoxicating liquors except for use in medicine and in the arts. The opposition, so far as it is disinterested, is based mainly upon dislike to that infringement of personal liberty to buy and sell necessarily implied in prohibition.

The famous Maine law was passed in 1851 and has prevailed in that state ever since except for the two years 1856-7. Vermont passed a similar law in 1852, and Rhode Island also, but the latter state returned to local option in 1863. New Hampshire adopted prohibition in 1855 but has not strictly enforced it. New York, Connecticut, Michigan and Iowa also tried the law for a term of years.

Several states have adopted a prohibitory clause in the state constitutions. Most of the states at present attempt by various forms of license and local option to regulate or check the sale of liquor. One of the most remarkable liquor systems is the dispensary law of South Carolina, which prohibits the sale, keeping, or transportation of any alcoholic liquor in the state under penalty of fine and imprisonment, and vests in the state the sole power of buying and selling through a board of control and dispensers appointed by it. To accomplish this main purpose, the act is carefully drawn and contains provisions calculated to make any attempt to sell in violation of its prohibition difficult and dangerous.

In 1873 the production in the United States of beer, ale, etc., was in round numbers 31,000,000 gals, and the amount of distilled spirits consumed that year was 63,000,000 gals. In 1893, the year of greatest production, the amount of beer and ale produced was 1,085,000,000 gallons and the amount of spirits consumed 97,000,000 gallons. In 1897 the product of beer, etc., had diminished to 1,067,000,000 gallons and the consumption of spirits to 70,000,000 gallons.

The Nation's Drink Bill for Twenty Years.

1876....\$	483,857,596.
1877....\$	481,963,735.
1878....\$	453,278,770.
1879....\$	482,064,339.
1880....\$	563,441,257.
1881....\$	608,070,693.
1882....\$	666,765,426.
1883....\$	708,089,263.
1884....\$	717,818,945.
1885....\$	678,374,931.
1886....\$	717,069,816.
1887....\$	762,599,015.
1888....\$	818,087,725.
1889....\$	840,890,849.
1890....\$	902,645,867.
1891....\$	979,582,803.
1892....\$	1,014,894,364.
1893....\$	1,079,483,172.
1894....\$	1,024,621,491.
1895....\$	962,192,854.

FUNK & WAGNALLS' HANDBOOK.

REGULATION OF LIQUOR TRAFFIC.

STATES.	Nature of liquor law.	Limits of license cost.	Receipts for licenses, Census 1890.	Costs of courts, jails, police, charities.	Special features of laws.
Alabama.....	Local option	\$25 to \$2,000	\$424,189	\$846,761	Minors cannot enter saloon.
Arkansas.....	"	"	223,896	837,384	Legislature may prohibit, locally.
California.....	"	\$60 to \$480	714,687	3,915,195	Bill for over \$5 for liquor cannot be collected.
Colorado.....	"	From \$300 up	565,249	828,173	No saloon within one mile of a church.
Connecticut...	"	\$100 to \$500	478,101	1,585,581	Wine and beer license, \$50.
Florida.....	"	\$25 to \$2,000	48,659	477,756	County license.
Georgia.....	"	From \$500 up	343,482	1,435,218	Saloons closed 10 p. m. to 5 a. m.
Illinois.....	"	"	2,893,378	5,082,003	\$1,000 fine for adulteration of liquor.
Louisiana.....	"	"	31,039	976,383	Licenses granted by commissioners.
Maryland.....	Special legislation	\$250	249,925	1,738,351	Licenses commissioners app. by Gov.
Massachusetts.	Local option	\$300 to \$1,500	2,502,226	7,790,745	Not over one saloon to each 1,000 people.
Michigan.....	"	\$300 to \$800	1,553,112	2,393,332	Vote once in three years.
Kentucky.....	"	\$50 to \$150	145,190	2,432,733	Vote once in two years.
Minnesota.....	"	From \$1,000 up	839,980	1,895,879	Option on petition of ten citizens.
Mississippi....	"	\$200 to \$1,000	237,275	493,593	Five years' imprisonment for adulteration.
Missouri.....	"	\$500 up	1,794,223	2,962,327	Licenses for six months only.
Nebraska.....	High license	\$1,000 up	339,500	699,800	"Treating," a misdemeanor.
Nevada.....	County license	Variable	51,953	227,579	"
New Jersey....	Local option	\$100 to \$250	872,873	2,903,343	Half revenue to state, half to city.
New York.....	"Raines' law"	\$100 to \$800	2,566,607	16,927,509	No limit to number of saloons.
Ohio.....	Local option	\$250	2,299,742	6,089,760	Penalties for violation very heavy.
Pennsylvania..	High license	\$75 to \$1,000	1,703,373	7,402,146	No license, if neighbors object.
Rhode Island..	Local option	\$200 to \$1,000	444,849	764,634	Revenue all goes to the state.
South Carolina	State monopoly	"	60,341	669,353	Local option, constitutional.
Tennessee.....	Local option	"	345,474	1,334,901	Three-fourths of the towns prohibition.
Texas.....	"	\$300 to \$600	169,681	2,054,652	Fees go to support of poor.
Virginia.....	"	\$75 to \$125	323,306	1,278,390	
Washington....	"	"	219,818	903,377	
West Virginia.	"	"	110,585	569,250	
Wisconsin.....	"	\$100 to \$200	640,619	2,050,805	

The following states have enacted prohibition laws: Maine, New Hampshire, Vermont, Iowa, Kansas, North Dakota, South Dakota.

The Canada Temperance act, as on Page 317, was in force Jan 1, 1897, in the following places in the Dominion: Annapolis, Cape Breton, Cumberland, Digby, Guysborough, Hants, Inverness, Kings, Queens, Shelburne in Nova Scotia. Albert, Carleton, Charlotte, Frederickton, Kings, Northumberland, Queens, Sunbury, Westmoreland, Yarmouth, York, in New Brunswick. Kings, Queens, Prince, in Prince Edward Island. Brome and Richmond, in Quebec. Lisgar and Marquette, in Manitoba. In British Columbia and Ontario the act is nowhere in force. Total in the Dominion, 29. Since the passing of the act it has been submitted to the electors 139 times but permanently adopted only by the above named places.

DIVORCE.

Divorce and State Legislation.

No Christian nation, it is alleged, is so lax as the United States in its legal regulation of the family.

Divorces increased in number nearly threefold during the years from 1867 to 1886, the ratio being nearly twice that of the growth of population. Since 1886, a large number of divorce laws have been enacted and many of the lax regulations of certain of the states have been remedied. The absence of recent statistics for the whole country, however, renders it impossible to state the present ratio of divorces.

Much confusion exists between the divorce laws of the states, each state setting its own standard. A man may be the lawful husband of a woman in one state, while in another state the law will hold him to be the husband of another. All the states, however, recognize adultery as a cause for divorce. South Carolina alone has no divorce law. In some of the newer states divorce laws are loosely enacted and liberally administered. A canvass of the hotels and boarding houses of Fargo, N D, in Jan, 1896, showed a total of 150 residents seeking divorce.

Oklahoma was also a favorite resort of divorce seekers, a thirty days' residence being sufficient to precede a suit, but a residence of one year is now required in the territories. Nebraska, Texas, California, Idaho, Wyoming and Nevada likewise require only a six months' residence. In some of the states a residence of from two to three years is required; in Massachusetts, the requirement is five years. The causes for which divorce is allowed vary from none in South Carolina, to twelve in Tennessee.

The movement to secure uniformity of state legislation has resulted in the appointment by thirty-one states of unsalaried commissions on uniformity, but these have made rather slow progress. Various suggestions have been made in regard to divorce legislation and the general trend of recent state lawmaking has been toward uniformity.

The conflicting laws are doubtless responsible for the large number of divorce hunters who migrate to other states in the search for separation. Yet it is stated that although the number who thus take advantage of the variation of state laws is large in itself, it includes only a small fraction of the total number seeking divorce. Hence any thorough going remedy must not rest at securing uniformity, but must seek to elevate the general standard of legislation, supported also by more exact and definite public sentiment.

Marriage laws now tend to raise the legal age of marriage of both sexes; to provide for better systems of license and the return of certificates; for the better celebration of marriage, and for the stricter definition of the prohibited degrees of relationship. Marriage laws of the states are summarized in the table, Page 118.

Along with these in very recent years has gone considerable legislation for the protection of the chastity of women and the young. In one year no less than nineteen different states enacted laws on this subject, directed mainly to the raising of the age of consent and the restriction of disreputable houses. A noticeable feature of all this legislation on the family has been the marked increase of it in the western states, and the fact that backward steps are rarely taken.

The general trend of divorce legislation in almost all parts of the civilized world seems to be toward a very few carefully defined causes for divorce and protected by a wisely guarded system of administration.

Divorce Laws.

CAUSES FOR ABSOLUTE DIVORCE.

Adultery.—In all States and Territories excepting South Carolina, which has no divorce laws.

Impotence.—In all excepting Arizona, California, Connecticut, the Dakotas, Idaho, Iowa, Louisiana, New Mexico, New York, South Carolina, Texas and Vermont.

Desertion.—In all except New York and South Carolina, as follows: Period: Six months' abandonment—Arizona. One year, in Alaska, Arkansas, California, Colorado, the Dakotas, Florida, Idaho, Kansas, Kentucky, Louisiana, Minnesota, Missouri, Montana, Nevada, Oregon, Utah, Washington, Wisconsin and Wyoming; two years, in Alabama, District of Columbia, Illinois, Indiana, Iowa, Michigan, Mississippi, Nebraska, North Carolina, Pennsylvania and Tennessee; three years, in Delaware, Georgia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, Ohio, Texas and West Virginia; five years, in Rhode Island, or shorter term (in discretion of court), and Virginia; seven years, in Connecticut and Vermont.

Habitual Drunkenness.—In all except Maryland, New Jersey, New York, North Carolina, Pennsylvania, South Carolina, Texas, Vermont, Virginia and West Virginia. In Arizona divorce is granted for this cause to the wife only.

Cruelty, Inhuman Treatment, etc.—In all except Maryland, New Jersey, New York, North Carolina, South Carolina, Virginia and West Virginia. For this cause in Alabama, Kentucky and Tennessee divorce is granted to the wife only.

Felony or Other Infamous Crime.—In all except the District of Columbia, Florida, Maine, New Jersey, New Mexico, New York, North Carolina and South Carolina.

Neglect to Support Wife.—For six months, Arizona; for one year, California, Colorado, the Dakotas, Idaho, Nevada and Wyoming; for two years, Indiana; for three years, Delaware and New Hampshire; time not specified, Maine, Massachusetts, Michigan, Nebraska, New Mexico, Rhode Island, Tennessee, Utah, Vermont, Washington and Wisconsin (at discretion of court).

Other Causes.—Voluntary separation—Kentucky and Wisconsin. Former husband or wife living—Arkansas, Colorado, District of Columbia, Florida, Illinois, Kansas, Mississippi, Missouri, Montana, New Jersey, Ohio, Pennsylvania and Tennessee. If member of religious sect which believes marriage unlawful—Kentucky, Massachusetts and New Hampshire. Indicted for felony and fugitive from justice—Louisiana and Virginia. Husband indicted for felony and a fugitive—North Carolina. Refusal

of wife to "remove with her husband to this State"—Tennessee. Indignities to the person of the other to render his or her condition intolerable—Alaska, Arkansas, Missouri, Oregon, Pennsylvania, Tennessee, Washington and Wyoming. Conduct rendering it unsafe for wife to live with husband, or turning wife out of doors—Tennessee. Violent and ungovernable temper—Florida. Attempt by either upon the life of the other—Illinois, Louisiana and Tennessee. Gross neglect of duty—Kansas and Ohio. Wife given to intoxication—Wisconsin. Husband a vagrant—Missouri and Wyoming. Mental incapacity at time of marriage—District of Columbia, Georgia and Mississippi. Permanent and incurable insanity occurring subsequent to marriage—Arkansas. Incurable chronic mania, or dementia, of ten years or more existence—Washington. Any cause rendering marriage originally void—Maryland and Rhode Island. (See "Marriage Laws.") Marriage within prohibited degrees—Florida, Georgia, Mississippi, New Jersey and Pennsylvania. Marriage by duress or fraud—Connecticut, Georgia, Kansas, Kentucky, Ohio, Pennsylvania and Washington. Marriage of either party under the age of consent—Delaware. When either party has obtained a divorce in another State—Florida, Michigan and Ohio. Defamation—Louisiana. Any other cause deemed by a court sufficient and when the court shall be satisfied that the couple can no longer live together—Washington. Insanity for six years—Idaho.

Limited Divorce.—Alabama, Arkansas, Delaware, District of Columbia, Georgia, Kentucky, Louisiana, Maryland, Michigan, Minnesota (in favor of wife only), Nebraska, New Jersey, New York, North Carolina, Pennsylvania (in favor of wife only), Rhode Island, Tennessee (in favor of wife only), Virginia, West Virginia, Wisconsin.

Alabama.—Courts of Alabama have decided that the Legislature cannot grant divorces.

Previous Residence Required.—Five years, Massachusetts (if when married both parties were residents three years); three years, Connecticut, New Jersey; two years, District of Columbia, Florida, Indiana, Maryland, Michigan (when the cause for divorce occurred out of the State, otherwise one year), North Carolina, Tennessee; one year, Alabama (abandonment, three years), Arkansas and Vermont (if cause occurred out of the State), Colorado (unless cause for divorce occurred within the State, or while one or both of the parties

Give a rogue rope enough and he'll hang himself.

Divorce Laws.—Continued.

resided in the State); Illinois (same as Colorado), Iowa, Kansas, Kentucky (if cause occurred out of the State, plaintiff must have been a resident of State at time of occurrence), Maine, Minnesota, Mississippi (in case of desertion, two years); Missouri (same as Colorado), Montana, New Hampshire, Ohio, Oregon, Pennsylvania, Rhode Island, Utah, Virginia, Washington, West Virginia, Wisconsin; six months, Arizona, California, Idaho, Nebraska, Nevada, New Mexico, Texas, Wyoming; ninety days, the Dakotas.

The new divorce law of South Dakota reads: "A divorce must not be granted unless the plaintiff is in good faith a resident of the State of South Dakota for at least six months preceding the granting of such divorce, and in no case shall a divorce be granted without personal service of the summons within the State, or personal service of the summons and complaint in case of non-residents without the State. If such personal service as aforesaid, within or without the state, be not had, then in that event the plaintiff shall

not be entitled to a decree of divorce until the plaintiff shall have been a resident of this State one year preceding the granting of such divorce."

The statutory grounds remain the same as before. In effect the law requires a residence in South Dakota of three months before an action can be begun, and three months more are required before a decree can be granted. The weak point in the old divorce law was that in case the defendant could not be found, a decree could be obtained by default, but in such cases the courts always held that the defence could come in and reopen the case, which often resulted in embarrassing complications. The present law does away with the difficult feature.

Oklahoma.—Divorces granted prior to 1895 by Probate Courts are made legal; hereafter divorces can be had only through the District Court.

South Carolina.—The Constitutional Convention adopted a clause forbidding the passing of any laws by the State Legislature recognizing divorce.

In cases of divorce involving the custody of children, the general principle is to consult the welfare of the child rather than any supposed rights of either parent, but in considering the rights of parents, the innocent parent is preferred before the guilty.

Divorce Statistics.

The following table shows the number of divorces (including judicial separations) in the various countries during twenty years, ending December, 1886. The figures are mainly from Commissioner Carroll Wright's work (Washington, 1889), compiled by Mulhall from Bertillon's and other returns. No later official figures have been compiled.

	Actual Number of Divorces Granted.				
	1867-'71.	1872-'76.	1877-'81.	1882-'86.	20 Years.
England.....	724	1,050	1,743	1,891	5,408
Scotland.....	177	220	337	390	1,124
Ireland.....	4	13	21	17	55
United Kingdom..	905	1,283	2,101	2,298	6,587
France.....	9,850	11,384	13,132	22,750	57,116
Germany.....	18,450	22,085	24,143	29,140	93,818
Russia.....	4,597	5,095	5,721	6,563	21,976
Poland.....	809	1,073	1,432	1,725	5,039
Austria.....		693	808	856	
Hungary.....			5,246	4,835	
Italy.....	3,136		3,195	2,828	
Sweden.....	619	953	1,053	1,109	3,734
Norway.....		162	195		
Denmark.....		2,677	3,046		
Holland.....	700	810	1,160	1,570	4,240
Switzerland.....			4,811	4,588	
Roumania.....		1,787	1,900		
Belgium.....	620	899	1,189	1,501	4,209
Europe approx'tly	46,600	57,500	69,132	85,100	258,332
Canada.....	15	16	33	52	116
United States.....	53,574	68,547	89,284	117,311	328,716
Total.....	100,189	126,063	158,449	202,463	587,164

You can't make a silken purse out of a sow's ear.

Divorces Yearly Per 100,000 Population.

STATES.	1867-'71.	1872-'76.	1877-'81.	1882-'86.	20 Y'rs.
New Engl'd.	52	54	53	52	53
Middle	17	15	16	19	17
South.....	13	17	24	31	24
West	43	50	54	65	60
The Union	30	32	35	42	36

Causes.

The causes for divorces granted were as follows:

Summary of Divorces Granted.

CAUSE.	To Husb'nd	To Wife.	Total.	Ratio.
Adultery	38,184	29,502	67,686	20.6
Cruelty	6,122	45,473	51,595	15.7
Desertion.....	51,485	75,191	126,676	38.5
Drunkenness...	1,434	12,432	13,866	4.3
Neglect	7,426	40,374	47,800	14.5
Various	7,889	13,204	21,093	6.4
Total.....	112,540	216,176	328,716	100.0

Classes Seeking Divorce.

In the term of five years ending 1880, the number of children corresponding to 100 divorce couples in Holland was 75, and in Sweden 130. Want of children, in Holland, seems a primary pretext for divorce; not so much so elsewhere.

The ratio of persons divorced per million inhabitants yearly of each class was as follows:

	France. 1865-'75.	Switzer land. 1876-'80.	Sweden 1876-'80.
Learned class...	125	470	130
Merchants.....	135	620	218
Farmers.....	20	190	20
Operatives	133	490	140
Gen. population	55	370	46

Divorces in Canada.

This table gives the number of divorces by provinces and sex from 1868 to 1897:

Province.	Males.	Females	Total.
Ontario	23	17	40
Quebec	7	7	14
Nova Scotia ..	40	42	82
N. Brunswick	34	30	64
Brit. Col.....	23	9	32
Manitoba.....	1	.....	1
N. W. Ter.....	1	.....	1
Total.....	129	105	234

In Ontario, Quebec, Manitoba and the Northwest territories, divorce can only be obtained by legislation, an act of the parliament of Canada being necessary. The rules of the Senate touching divorce require the production of such evidence in support of the application as will be deemed sufficient in a court of law.

Youthful marriages seem most exposed to divorce, the ratios being as follows in Switzerland:

Marrying Age.	Divorces per 10,000 marriages.
Under 20,	620
20-40,	330
Over 40	320

CANADA.

The number of marriages is not known, but if we assume the medium rate of 8 per 1000 inhabitants (as compared with $7\frac{1}{2}$ in Australia and 9 in the United States) the record will stand thus:

PERIOD.	Mar- riages.	Divorces.	Divorces per 1000 Marriages.
1867-71	31,000	15	0.5
1872-76	33,000	16	0.5
1877-81	35,000	33	0.9
1882-86	37,000	52	1.4
20 Years,	136,000	116	0.9

The tendency of the important foreign legislation of the last twenty years, especially in Germany, Switzerland, France, Australia, and Japan, is asserted to tend towards an essentially common system of marriage and divorce law, and the same essential features characterize British and most American law, though developed to a varying degree. German marriage law and the proposed family code of Japan are probably more distinctly than the others based on the conception of family rather than individual law. The beginning of an attempt is being made by the Divorce Reform league to secure some agreement of divorce laws among the different nations as well as among the states of this nation.

In deep waters men find great pearls.

Age of Protection Laws.

A leading aim of the reformers, who have the social purity movement in charge, is to raise the "age of consent," or "age of protection," as it might be termed, in the various states. The consent law guards girls against the immaturity of their own judgment. To quote a leading social reformer, the ideal age of consent law says: "Until you are twenty-one years of age, you may not buy or sell or deed property; you have not sufficient judgment to make important contracts, and until you have this, the law will protect you even against yourself." The scientific basis of such legislation is the interest of public health and clean heredity. Many of the advocates of the movement, however, have urged the law chiefly from consideration of religion and morality. The law aims to protect youth, ignorance and inexperience from acts of social immorality until it shall have arrived at years of discretion. The age limit urged by most of the reformers is 18 years. In some legislatures, bills have been introduced, placing the age of consent as high as 21 years, but these bills have been defeated or the age reduced. Reference to the chart herewith will show the ages fixed by law of the various states.



Chart showing "Age of Consent," or Age of Protection in the different states. Revised for the year book to Jan. 1, 1898, by Supt. Wilbur T. Crafts of the Reform Bureau, Washington, D. C.

NOTES BY SUPERINTENDENT CRAFTS: Nebraska and Missouri have serious defects in their laws. Seduction of young girls is merely a finable misdemeanor in New Jersey, which should rule this state out of the sixteen list. In Pennsylvania, the victim must prove previous good character after ten years of age, which does not place Pennsylvania justly with the sixteen list. The wording of the Georgia law may permit a jury to place the age at five, or any other age up to fourteen. In Florida, abduction and finable offences up to sixteen, but rape law, "with consent," ends at ten.

The age at which the male offender is held responsible varies from 14 to 16 years. The punishment varies greatly in the different states. In some, the offence, below certain ages, is deemed a capital crime, punishable with death, imprisonment for life, or fines, etc., according to the circumstances of the case. Most states impose a term of imprisonment, while in some the offender may escape with a fine.

In Canada, seduction of girls of from 14 to 16 years is punishable by two years' imprisonment. Under 14 years, the offence is punishable by life imprisonment and whipping.

Brag seized the absent lion, and ran away from the present mouse.

POLITICS, NEW AND OLD.

Public Extravagance.

The people of the United States have become somewhat accustomed to the billion dollar congresses and the majority hardly realize to what an extent the cost of running the government has increased during the past few years, an increase all out of proportion to the gain in population, wealth or in tax-paying ability.

Overgrown Expenses.

As the population increases, the cost of government per capita might naturally be expected to decrease, just as a full load of passengers can be hauled more cheaply per capita than a few individuals in the same conveyance. But in the case of public expenditures, during the ten years from 1877 to 1886 the cost for each inhabitant of the United States was \$40.27, while during the ten years 1887-'96 the cost, notwithstanding the more numerous population, had become \$54.74 per capita, an increase of \$14.47.

Where Some of the Money Goes.

The following table shows where the money went to and in what items the increase was greatest. The total gain of congressional appropriations for the ten years is detailed by departments, with the increase per cent:

DEPARTMENTS.	Ten Years Increase. 1887-'96.	Increase per cent.	DEPARTMENTS.	Ten Years Increase. 1887-'96.	Increase per cent.
Agricultural	\$20,241,607.06	624.98	Naval.....	\$95,757,800.46	66.40
Diplomatic and consular.....	3,990,567.96	33.59	Pensions	319,648,167.86	134.01
Dist. of Colum..	16,280,102.57	58.48	Post office.....	19,304,922.38	77.97
Fortification....	17,754,224.50	374.95	Riv. and harbor	57,454,502.90	77.49
Indian.....	35,385,763.15	70.32	Sundry civil...*	56,889,366.77	25.81
Legislative.....	34,132,250.91	19.98	Deficiencies....	33,400,050.22	56.12
Mil. Academy...	1,398,692.71	45.02	Miscellaneous ..	15,378,706.35	43.03
			Total	\$1,427,016,725.80	.....

The ten years after 1887 cost an average of about \$140,000,000 per year above the ten years before 1887. Twenty years ago, when vast sums were being paid on the public debt, the annual running expenses of the government were about one-third of a billion dollars, now they are about one-half of a billion dollars, and the public debt is not being decreased.

Time to Call a Halt.

The unreasonable growth of government expense has attracted widespread attention. Quoting from an article in Harper's Weekly, May 1, 1897:

"The United States government is rapidly proving the assertion of our critics that a democracy is necessarily the most extravagant form of government. In another way this theory has been implied in the statement that in a democracy the public business is nobody's business. But if this be really the characteristic of a democracy, if democracy must continue to be the prey of private interests and of the greed of privileged classes, it is a failure at least to that extent. If extravagance is to go on increasing, if Congress is never to give a thought to the general interest, if the taxes are to become heavier and heavier burdens, if our unarmed country is to be as expensive to

None are so deaf as those who won't hear.

its citizens as the countries of military Europe are to theirs, the blessings of our form of government must grow to be greater than they are if democracy is not to be proved to be no improvement whatever on the forms of government to which it has succeeded. That the time has come when the people must insist on a revival of their expenditures is shown by the rapid increase in the cost of government within the last twenty years.

"In 1880 the population of the United States was 50,156,000, and the appropriations made by Congress for that fiscal year amounted to \$162,404,648. In 1890 the population of the country was 62,622,000, and the appropriations had increased to \$218,115,440. So that while the population of the country had been growing at a rate less than 25 per cent, the appropriations of Congress had increased more than 34 per cent. For the fiscal year 1897 the appropriations will be more than 86 per cent in excess of the appropriations for 1880. It seems, from this, as though Mr. McKinley's earnest plea for economy in his inaugural address had a much stronger warrant in prevailing conditions than the pending bill for the increase of taxation and reduction of revenue."

To offset this increase of 86 per cent in the appropriations of 1897 over these of 1880, we have a population gain between 1880 and 1897 of less than 46 per cent, according to the official estimates. Hence the expenditures are growing nearly twice as fast as the number of people to pay them.

States also Extravagant.

So much for the extravagance of national government. When we turn to the state government, the general lavishness of outlay is empha-

Increase of State Expenses.

<i>Connecticut.</i>	1860	1894 or 5	Inc%	<i>Michigan.</i>	1860	1894 or 5	Inc%
Expenses.....	\$217,149	\$2,250,000	930	Expenditures..	\$730,441	\$3,669,305	402
Taxed property	254,743,000	460,223,000	80	Valuation.....	137,663,000	1,130,000,000	721
Population.....	460,147	700,000	65	Population.....	749,113	2,241,451	199
Expenses p cap	.47	2.96	528	Expenses p cap	.97	1.64	69
" p \$1000				" p \$1000	5.31	3.25	c21
taxed property	.85	4.88	474	<i>Minnesota.</i>			
<i>Illinois.</i>				Expenditures..	\$138,846	\$5,476,909	3,844
Expenditures..	\$1,843,899	\$5,186,962	181	Valuation.....	36,753,408	638,916,326	1,638
Assessed val...	367,227,742	833,188,467	124	Population.....	172,023	1,574,619	815
Population.....	1,711,951	4,208,986	145	Expenses p cap	.80	3.47	334
Expenses p cap	1.07	1.23	15	" p \$1000	3.77	8.57	122
" p \$1000	5.02	6.22	23	<i>New Hampshire.</i>			
<i>Iowa.</i>				Expenditures..	\$175,682	\$483,826	163
Expenditures..	\$377,575	\$1,972,940	422	Valuation.....	(?)	200,958,000	(?)
Valuation.....	192,900,040	558,985,292	189	Population.....	326,073	376,530	15
Population.....	674,913	2,058,069	205	Expenses p cap	.54	1.28	137
Expenses p cap	.56	.96	71	" p \$1000	(?)	2.40	(?)
" p \$1000	1.96	3.53	80	<i>New Jersey.</i>			
<i>Maine.</i>				State expend ..	\$223,060	\$2,269,000	917
Expenditures..	\$529,596	\$1,528,493	188	Valuation.....	584,400,000	787,000,000	34
Valuation.....	164,714,168	324,478,321	97	Population.....	672,073	1,672,942	148
Population.....	628,279	661,086	5	Expenses p cap	.33	1.35	304
Expenses p cap	0.84	2.31	175	" p \$1000	.38	2.88	638
" p \$1000	3.21	4.71	46	<i>Vermont.</i>			
<i>Massachusetts.</i>				Expenditures..	\$181,536	\$600,000	236
Expenditures..	\$1,091,086	\$6,966,768	538	Valuation.....	83,960,472	158,444,112	88
Valuation.....	897,795,326	2,653,934,509	195	Population.....	315,000	333,000	5
Population.....	1,231,003	2,500,183	103	Expenses p cap	.57	1.80	216
Expenses p cap	.88	2.78	215	" p \$1000	2.16	3.77	74
" p \$1000	1.21	2.62	116	<i>Wisconsin.</i>			
<i>Maryland.</i>				Expenditures..	\$1,713,853	\$4,211,910	145
Expenditures..	\$1,306,043	\$2,454,750	88	Valuation.....	184,062,536	603,473,526	227
Valuation.....	282,680,498	534,930,476	89	Population.....	775,629	1,937,915	149
Population.....	687,049	1,138,348	66	Expenses p cap	2.21	2.13	c1
Expenses p cap	1.90	2.15	13	" p \$1000	9.20	6.98	c24
" p \$1000	4.62	4.58	Dec				

c Decrease.

It is a long lane that has no turning.

sized again. The preceding table shows the increased cost of the state government, in which the fact is to be noted that the per capita, as well as the total, expense, is much larger than it was thirty-five or forty years ago.

Thus in all but two or three of the states given, expenses have increased very much faster than population, or than property, and the per capita cost averages several times greater than in 1860. In Maine the increase per capita is 175 per cent, Vermont 216, Massachusetts 215, Connecticut 528, New Jersey 309, Michigan 69, Iowa 71, while in Minnesota state expenses per head of population are now 334 per cent greater than in the year first noted. Wisconsin has the proud distinction of showing a slight decrease in per capita expense and in Illinois the increase is only 15 per cent.

Who Pays the Bills?

In some states, as for example Connecticut and New Jersey, a notable fact is the increase of expense for each \$1000 of property. Evidently the increasing expense must be supported by the taxable property and a gain in expense per \$1000 of property means a gain in the tax per \$1000 of property. Here is where the matter comes home to the taxpayers.

Growth or Decrease of National Debts.

COUNTRY.	Twenty years ago.	Ex. in mils. 1897.	COUNTRY.	Twenty years ago.	Ex. in mils. 1897.
France.....	\$4,500	\$6,000	Germany.....	\$1,000	420
England.....	3,900	3,300	Australasia.....	230	1,200
Austria.....	1,750	3,000	Turkey.....	675	900
Russia.....	1,700	2,875	Portugal.....	345	765
Italy.....	1,950	2,530	India.....	650	635
United States...	2,220	1,004	Brazil.....	475	590
Spain.....	1,375	1,395	Egypt.....	375	530

Only the United States, England, Germany and India have decreased their indebtedness. The other leading nations of the world have plunged more and more deeply into debt.

Naturalization.

Citizenship carries with it the right of government protection wherever the citizens may go. A naturalized citizen has the same rights as one native born, but the right to vote is conferred according to the different state laws and does not necessarily accompany citizenship of the United States.

To be admitted as a citizen of the United States a foreigner, having two years previously legally declared his intention of citizenship, must take oath to renounce allegiance to other countries and to support the United States constitution. He must renounce titles of nobility, must have lived five years in the United States and one year in the state or territory as a man of good character and loyal to the nation.

Minors who have lived in the United States since 18 years of age, become eligible after two years more of residence. American children born abroad do not need naturalization. Chinese are excluded from naturalization.

Requirements for Voters.

Voters must be 21 years of age in all the states. Women are given full power of suffrage in three states, Colorado, Utah and Wyoming. Women vote upon local or school officers or local taxation in the follow-

ing states: Arizona, Delaware, Idaho, Illinois, Indiana, Iowa, Kentucky, Massachusetts, Michigan, Minnesota, Montana, Nebraska, New Hampshire, New Jersey, North Dakota, Ohio, Oklahoma, Oregon, South Dakota, Texas, Vermont, Washington and Wisconsin.

Voters in most of the states must be citizens of the United States.

STATES.	Males of voting age, census 1890.	Austra'n ballot, yes or no	Length of residence required.				Registration Required?
			In State.	In County	In Town.	In Precinct.	
Alabama	324,822	Yes	1 yr.	3 mos.	30 d.	30 d.	Yes.
Arkansas.....	257,868	Yes	1 yr.	6 mos.	30 d.	30 d.	No.
California.....	462,289	Yes	1 yr.	90 d.	.....	30 d.	Yes.
Colorado	164,920	Yes	6 mos.	90 d.	30 d.	10 d.	Yes.
Connecticut...	224,092	Yes	1 yr.	6 mos.	6 mos.	6 mos.	No.
Delaware.....	47,559	Yes	1 yr.	1 mo.	1 mo.	10 d.	Yes.
Florida.....	96,213	Yes	1 yr.	6 mos.	.....	.....	Yes.
Georgia.....	398,122	No	1 yr.	6 mos.	.....	10 d.	Yes.
Idaho.....	31,490	Yes	6 mos.	30 d.	.....	.....	Yes.
Illinois.....	1,072,663	Yes	1 yr.	90 d.	30 d.	30 d.	Yes.
Indiana.....	595,066	Yes	6 mos.	60 d.	60 d.	30 d.	No.
Iowa.....	520,332	Yes	6 mos.	60 d.	10 d.	.....	Yes.
Kansas.....	383,231	Yes	6 mos.	30 d.	.....	30 d.	Yes.
Kentucky.....	450,792	Yes	1 yr.	6 mos.	.....	60 d.	Cities of 5,000.
Louisiana.....	250,563	No	1 yr.	6 mos.	.....	30 d.	Yes.
Maine.....	201,241	Yes	3 mos.	3 mos.	3 mos.	3 mos.	Yes.
Maryland.....	270,738	Yes	1 yr.	6 mos.	.....	5 d.	Yes.
Massachusetts	665,009	Yes	1 yr.	6 mos.	6 mos.	6 mos.	Yes.
Michigan.....	617,445	Yes	6 mos.	.....	20 d.	20 d.	Yes.
Minnesota.....	376,036	Yes	4 mos.	10 d.	.....	19 d.	Yes.
Mississippi....	271,080	Yes	2 yrs.	1 yr.	1 yr.	1 yr.	Yes.
Missouri.....	705,718	Yes	1 yr.	60 d.	60 d.	60 d.	Cities
Montana.....	65,415	Yes	1 yr.	30 d.	30 d.	30 d.	Yes.
Nebraska.....	301,500	Yes	6 mos.	40 d.	10 d.	10 d.	Cities of 7,000.
Nevada.....	20,951	Yes	6 mos.	6 mo.	30 d.	30 d.	Yes.
N. Hampshire.	118,135	Yes	6 mos.	30 d.	6 mos.	10 d.	No.
New Jersey...	413,530	Yes	1 yr.	5 mos.	.....	1 d.	Yes.
New York.....	1,769,649	Yes	1 yr.	4 mos.	30 d.	30 d.	Yes.
No. Carolina...	342,653	No	1 yr.	90 d.	.....	.....	Yes.
No. Dakota....	55,959	Yes	1 yr.	6 mos.	.....	90 d.	No.
Ohio.....	1,016,464	Yes	1 yr.	30 d.	20 d.	20 d.	Cities of 10,000.
Oregon.....	111,744	Yes	6 mos.	90 d.	30 d.	30 d.	No.
Pennsylvania.	1,461,869	Yes	1 yr.	.....	.....	60 d.	Yes.
Rhode Island..	100,017	Yes	2 yrs.	.....	6 mos.	6 mos.	Yes.
So. Carolina...	235,606	No	1 yr.	60 d.	4 mos.	60 d.	Yes.
South Dakota..	96,765	Yes	6 mos.	30 d.	10 d.	10 d.	Cities of 1,000 voters.
Tennessee.....	402,476	Yes	1 yr.	6 mos.	.....	.....	Yes.
Texas.....	535,942	Yes	1 yr.	6 mos.	6 mos.	6 mos.	Cities of 10,000.
Utah.....	54,471	Yes	1 yr.	4 mos.	.....	60 d.	Yes.
Vermont.....	101,697	Yes	1 yr.	.....	3 mos.	3 mos.	Yes.
Virginia.....	378,782	Yes	1 yr.	3 mos.	30 d.	30 d.	Yes.
Washington...	146,918	Yes	1 yr.	90 d.	.....	30 d.	Yes.
West Virginia	181,400	Yes	1 yr.	60 d.	10 d.	.....	No.
Wisconsin.....	461,722	Yes	1 yr.	.....	.....	10 d.	Cities.
Wyoming.....	27,044	Yes	1 yr.	60 d.	10 d.	.....	Yes.
Arizona.....	23,696	Yes	1 yr.	10 d.	.....	10 d.	Yes.
New Mexico...	44,951	No	6 mos.	3 mos.	.....	.....	Yes.
Oklahoma.....	19,161	No	6 mos.	60 d.	.....	30 d.	Yes.

In some States, Australian ballot has been greatly modified in form.

In others those may vote who have formally declared their intention to become citizens. In Massachusetts, voters must be able to read and write. Connecticut, Mississippi, South Carolina and Wyoming, require power to read. Certain special classes are excluded in various states, such as persons of unsound mind and criminals. Some states exclude paupers, Indians and Chinese.

Old birds are not caught with chaff.

The Initiative and Referendum.*

When every citizen has the right to propose a measure of law to his fellow citizens—this principle is known as the initiative. When the majority actually enact the law by voting the acceptance or the rejection of the measures proposed—this principle when applied in balloting at polling places on measures sent from legislative bodies to the people is known as the referendum. Direct legislation has made great progress in the state governments in the United States. In every state, except Delaware, constitutional amendments go to the people for a vote.

CONSTITUTIONAL REFERENDUM.

Among the matters once left entirely to legislatures, but now commonly dealt with in constitutions, are the following: Prohibiting or regulating the liquor traffic; prohibiting or chartering lotteries; determining tax rates; founding and locating state schools and other state institutions; establishing a legal rate of interest; fixing the salaries of public officials; drawing up railroad and other corporation regulations; and defining the relations of husbands and wives and of debtors and creditors. Says Mr Ellis P. Oberholtzer: "In fifteen states, until submitted to a popular vote, no law changing the location of the capital is valid; in seven no law establishing banking corporations; in eleven no laws for the incurrence of debts excepting such as are specified in the constitution, and no excess of casual deficits beyond a stipulated sum; in several no rate of assessment exceeding a figure proportionate to the aggregate valuation of the taxable property. Without the referendum Illinois cannot sell its state canal, Minnesota cannot pay interest or principal of the Minnesota railroad; North Carolina cannot extend the state credit to aid any person or corporation, excepting to help railroads unfinished in 1876. With the referendum Colorado may adopt woman suffrage and create a debt for public buildings, Texas may fix a location for a college for colored youth; Wyoming may decide on the sites for its state university, insane asylum and penitentiary."

LOCAL REFERENDUM.

There are many county, city, township and school district referendums. In nineteen states the constitution guarantees to counties the right to fix by vote of the citizens the location of the county seats, county lines, divisions of counties and like matters. In several western states it is left to the citizens of the counties as to when they shall adopt a township organization and cities when they shall become counties. The amount of municipal indebtedness in many states, notably Pennsylvania, is decided by a vote of the people. In western states in a similar manner loans and tax limitation is decided. Harbor improvements and the extension of credit for internal improvements in southern states is decided by the referendum. "Local option" is the commonest form of the referendum. In California any city with more than 10,000 inhabitants may frame a charter for its own government, which, however, must be approved by the legislature. In many states

*These definitions and many of the facts are taken from the treatise *Direct Legislation*, by J. W. Sullivan, New York. Also from an article published in "Annals of the American Academy of Political and Social Science" Nov., 1891, by Ellis P. Oberholtzer.

municipal charters must first be referred to the people before adoption.

The town meeting of New England, at which any citizen may propose measures and those of the majority accept and reject them, the working principles of the initiative and referendum, has been adopted in many of the western states and of recent years with increased rapidity. The first western state to adopt the town meeting system was Michigan, but it now prevails in four-fifths of the counties of Illinois, in one-sixth of Missouri, where it was begun in 1879, in one-third of the counties of Nebraska, which adopted it in 1883, and has been generally adopted in Minnesota and Dakota. Direct legislation has long been used by the labor unions, amendments to the constitution, the acts of executives and resolutions being submitted to local unions, while the initiative is introduced in this international union through local unions.

Presidential Nominees

of all the parties in 1896 were: Republican, for president, William McKinley of Ohio; for vice president, Garrett A. Hobart, of New Jersey. Democratic, for president, William J. Bryan, of Nebraska; for vice president, Arthur Sewall of Maine. National democratic, for president, John M. Palmer of Illinois; for vice president, Simon B. Buckner of Kentucky. Populist, for president, William J. Bryan of Nebraska; for vice president, Thomas E. Watson of Georgia. Silver party, for president, William J. Bryan; for vice president, Arthur Sewall. Prohibition, for president, Joshua Levering of Maryland; for vice president, Hale Johnson of Illinois. Prohibition Bolters, for president, Rev Charles E. Bentley of Nebraska; for vice president, J. H. Southgate of North Carolina. Socialist Labor, for president, Charles H. Matchett of New York; for vice president, Matthew Maguire of New Jersey.

The Senate in 1899.

Thirty United States senators go out of office March 4, 1899, thirty more on March 4, 1900, and thirty more on March 4, 1903. Of the thirty who go out in 1899, fifteen are democrats, eleven republicans, three silver republicans and one a populist. Among the democrats whose terms expire in 1899 are Gorman of Maryland, Faulkner of West Virginia, Mitchell of Wisconsin and Turpie of Indiana. In all these states it seems very doubtful that a successor of the same party can be elected, since the republicans are now in ascendancy. Several democratic senators, however, from the south and northwest, are pretty certain to be succeeded by democrats. These include Mills of Texas, Daniel of Virginia, Pasco of Florida, Bates of Tennessee. California, New York, New Jersey, Delaware, and North Dakota will also have to elect successors to their present democratic senators.

The list of republican senators who will retire next year includes Aldrich of Rhode Island, Quay of Pennsylvania, Lodge of Massachusetts, Davis of Minnesota, Hale of Maine, Proctor of Vermont. All of these are from strongly republican states.

Three silver republicans, Cannon of Utah, Mantle of Montana, Stewart of Nevada, will retire, but stand good chance of re-election.

Allen, the retiring populist senator from Nebraska, is said to be likely to be re-elected. On the whole the indications point toward a

He doubts nothing who knows nothing.

maintenance of the present strength of the populists and silver republicans and a relative gain in the numbers and personnel of the republicans as compared with the democrats.

Senators Whose Terms of Service Expire March 4, 1899.

NAME.	Politics.	Residence.	Commencement of service.
Aldrich, Nelson W.....	R	Providence, R. I.....	Oct. 5, 1881
Allen, William V.....	P	Madison, Nebraska.....	Mar. 4, 1893
Bate, William B.....	D	Nashville, Tenn.....	Mar. 4, 1887
Burrows, Julius C.....	R	Kalamazoo, Mich.....	Jan. 23, 1895
Cannon, Frank J.....	S R	Ogden, Utah.....	Jan. 22, 1896
Clark, Clarence D.....	R	Evanston, Wyoming.....	Feb. 6, 1895
Cockrell, Francis M.....	D	Warrensburg, Mo.....	Mar. 4, 1875
Daniel, John W.....	D	Lynchburg, Va.....	Mar. 4, 1887
Davis, Cushman K.....	R	St. Paul, Minn.....	Mar. 4, 1887
Faulkner, Charles J.....	D	Martinsburg, W. Va.....	Mar. 4, 1887
George, James Z.....	D	Carrollton, Miss.....	Mar. 4, 1881
Gorman, Arthur P.....	D	Laurel, Md.....	Mar. 4, 1881
Gray, George.....	D	Wilmington, Del.....	Mar. 19, 1885
Hale, Eugene.....	R	Ellsworth, Me.....	Mar. 4, 1881
Hanna, Marcus A.....	R	Cleveland, Ohio.....	Mar. 4, 1897
Hawley, Joseph R.....	R	Hartford, Conn.....	Mar. 4, 1881
Lodge, Henry Cabot.....	R	Nahant, Mass.....	Mar. 4, 1893
Mantle, Lee.....	S R	Butte, Montana.....	Feb. 2, 1895
Mills, Roger Q.....	D	Corsicana, Texas.....	Mar. 30, 1892
Mitchell, John L.....	D	Milwaukee, Wis.....	Mar. 4, 1893
Murphy, Edward, Jr.....	D	Troy, N. Y.....	Mar. 4, 1893
Pasco, Samuel.....	D	Monticello, Fla.....	Mar. 4, 1897
Proctor, Redfield.....	R	Proctor, Vt.....	Nov. 1, 1891
Quay, Matthew S.....	R	Beaver, Pa.....	Mar. 4, 1887
Roach, William N.....	D	Larimore, North Dakota.....	Mar. 4, 1893
Smith, James, Jr.....	D	Newark, N. J.....	Mar. 4, 1893
Stewart, William M.....	R	Virginia City, Nevada.....	Mar. 4, 1887
Turpie, David.....	D	Indianapolis, Ind.....	Mar. 4, 1887
White, Stephen M.....	D	Los Angeles, Cal.....	Mar. 4, 1893
Wilson, John L.....	R	Spokane, Wash.....	Feb. 19, 1895

Senatorial Elections by Popular Vote.

The election of U S senators by popular vote is practically insured in South Carolina. There, for the third time in succession, candidates for the senate began a joint canvass before the electors, which was finished in time for the democratic primaries in September, when voters expressed their preference. The state legislature elects the candidate who gets a majority at the primaries, just as the electoral college registers the popular verdict regarding the presidency. There is nothing to hinder any state following this example, and it would seem to be the best way for those in favor of popular voting for U S senators to extend this reform. Not until the satisfactory working of the system has been thus demonstrated in several states will there be any prospect of securing this reform through an amendment to the U S constitution. After that, however, such an amendment could be obtained with comparative ease.

Since the foundation of the government, the individual states have been represented the following number of times in cabinet positions: Massachusetts, 29; New York, 28; Pennsylvania, 25; Virginia, 22; Ohio, 19; Kentucky, 15; Maryland, 15; Connecticut, 9; Indiana 9; Georgia, 8; Tennessee, 8; Illinois, 6; Maine, 6; South Carolina, 6; Mis-

Necessity is the mother of invention.

souri, 6; Delaware, 5; Wisconsin, 5; Iowa, 4; Michigan, 4; Mississippi, 4; New Jersey, 4; North Carolina, 4; Louisiana, 3; Minnesota, 3; New Hampshire, 3; West Virginia, 3; Vermont, 2; Alabama, 1; Arkansas, 1; Colorado, 1; Nebraska, 1; Oregon, 1. The states which have not been represented in the cabinet are: California, Florida, Idaho, Kansas, Montana, Nevada, North Dakota, Rhode Island, South Dakota, Texas, Washington, Wyoming.

Politics of Congressmen.

This table gives the political statistics of the United States Congress since 1856, the year of the formation of the republican party.

CONGRESS.	Years.	SENATE.				HOUSE.			
		Rep.	Dem.	Amer.	Ind.	Rep.	Dem.	Amer.	Ind.
XXXV.....	1857-59	20	39	5	.....	92	131	14	.....
XXXVI.....	1859-61	26	38	2	.....	113	101	23	.....
XXXVII*.....	1861-63	31	10	a2	.....	106	42	a28	.....
XXXVIII*.....	1863-65	36	9	a5	.....	102	75	.....	9
XXXIX.....	1865-67	41	11	.....	.....	145	40	.....	.....
XL.....	1867-69	42	11	.....	.....	143	49	.....	.....
XLI.....	1869-71	58	11	.....	.....	151	78	.....	.....
XLII.....	1871-73	57	17	.....	.....	138	103	.....	b5
XLIII.....	1873-75	47	20	.....	b7	194	92	.....	14
XLIV.....	1875-77	43	29	.....	b2	107	168	.....	.....
XLV.....	1877-79	36	39	.....	b1	142	151	.....	.....
XLVI.....	1879-81	32	44	.....	.....	129	148	.....	f16
XLVII.....	1881-83	37	38	.....	1	146	138	.....	f10
XLVIII.....	1883-85	†40	36	.....	.....	124	198	.....	f1
XLIX.....	1885-87	42	34	.....	.....	120	204	.....	f1
L.....	1887-89	39	37	.....	.....	153	168	.....	4
LI.....	1889-91	39	37	.....	.....	166	159	.....	.....
LII.....	1891-93	47	39	.....	c2	88	236	.....	c8
LIII.....	1893-95	d37	44	.....	c4	126	220	.....	c8
LIV.....	1895-97	43	39	.....	c e6	244	g104	.....	c7
LV.....	1897-99	46	33	.....	c6	205	h134	.....	c16

* During civil war some southern states were unrepresented. † Two Virginia senators were readjusters and voted with republicans. a, Union party. b, Liberal republicans. c, Populists. d, Three vacancies. e, Two silver senators of Nevada. f, Greenbackers. g, One vacancy. h, Of these 14 are fusionists.

Representatives Under Eleventh Census, by States.

STATES.	No.	STATES.	No.
Alabama (1).....	9	Nebraska (3).....	6
Arkansas (1).....	6	Nevada.....	1
California (1).....	7	New Hampshire.....	2
Colorado (1).....	2	New Jersey (1).....	8
Connecticut.....	4	New York.....	34
Delaware.....	1	North Carolina.....	9
Florida.....	2	North Dakota.....	1
Georgia (1).....	11	Ohio.....	21
Idaho.....	1	Oregon (1).....	2
Illinois (2).....	22	Pennsylvania (2).....	30
Indiana.....	13	Rhode Island.....	2
Iowa.....	11	South Carolina.....	7
Kansas (1).....	8	South Dakota.....	2
Kentucky.....	11	Tennessee.....	10
Louisiana.....	6	Texas (2).....	13
Maine.....	4	Utah.....	1
Maryland.....	6	Vermont.....	2
Massachusetts (1).....	13	Virginia.....	10
Michigan (1).....	12	Washington.....	2
Minnesota (2).....	7	West Virginia.....	4
Mississippi.....	7	Wisconsin (1).....	10
Missouri (1).....	15	Wyoming.....	1
Montana.....	1		

Figures in parentheses show increase over those allowed by 1880 census. Each territory is also allowed one delegate.

Time of Next Republican State Conventions.

Ala., *Spring of 1898	Ind. T., Sum, fall, '98	Neb., Sept., 1898	R. I., Apr., 1898
Ariz., *Sept., 1898	Iowa, Summer, 1898	Nev., Nov., 1898	S. C., 1898
Ark., Summer 1898	Kansas, 1898	N. H., Sept., 1898	S. Dak., July, 1898
Cal., Aug., 1898	Ky, 1900	N. J., ?	Tenn., 1898
Col., 1898	La., 1900	N. M., Sept., 1898	Tex., Fall, 1898
Conn., Aug. or Sept. '98	Maine, * Biennial	N. Y., 1898	Utah, 1898
Del., Aug., 1898	Mass., Jan. 7, 1898	N. C., 1898	Vt., *June or July, '98
Fla., Biennial	Mich., July or Aug. '98	N. Dak., 1898	Va., 1900
Ga., 1900	Minn., 1898	Ohio, 1898	Wash., *1898
Idaho, Sept., 1898	Miss., 1900	Okla., *1898	West Va., 1900
Ill., Summer, 1898	Mo., 1898	Oregon, Apr., 1898	Wis., Aug., 1898
Ind., Dec., 1897	Mont., Aug., 1898	Pa., May or June, 1898	Wyo., Summer, 1898

*Biennial.

Republican State Chairmen and Secretaries.

Chairmen and Secretaries of the Committees appointed by the last Republican State (and Territorial) Conventions.

STATES.	Chairmen.	Post Offices.	Secretaries.	Post Offices.
Alabama	William Vaughan.	Birmingham...	C. F. Johnson.....	Mobile.....
Arizona.....	J. M. Ford.....	Phoenix.....	W. C. Barnes.....	Phoenix.....
Arkansas.....	Henry M. Cooper..	Little Rock.....	M. W. Gibbs.....	Little Rock.....
California.....	Frank McLaughlin	Oroville.....	M. R. Higgins.....	San Francisco..
Colorado.....	J. L. Hodges.....	Denver.....	W. H. Brisbane...	Leadville.....
Connecticut....	O. R. Tyler.....	Torrington.....	Samuel A. Eddy...	Canaan.....
Delaware.....	Hugh C. Bowne...	Wilmington...	W. H. Heald.....	Wilmington....
Florida.....	John E. Stillman..	Jacksonville...	Joseph E. Lee.....	Jacksonville...
Georgia.....	Alfred E. Buck...	Atlanta.....	J. H. Deveaux....	Savannah.....
Idaho.....	Joseph Perrault...	Boise.....	F. A. Fenn.....	Boise.....
Illinois.....	Charles Rannels..	Chicago.....	J. R. B. Van Cleave	Chicago.....
Indiana.....	G. F. McCullough.	Indianapolis...	R. E. Mansfield...	Muncie.....
Iowa.....	H. G. McMillan...	Rock Rapids....	I. M. Treynor.....	Council Bluffs..
Kansas.....	James M. Simpson	McPherson.....	J. L. Bristow.....	Ottawa.....
Kentucky.....	C. M. Barnett.....	Hartford.....	Wm. E. Riley.....	Louisville.....
Louisiana.....	W. E. Howell.....	Thibodeaux....	John S. Dennee...	New Orleans....
Maine.....	Joseph H. Manley	Augusta.....	Byron Boyd.....	Augusta.....
Maryland.....	G. L. Wellington..	Cumberland....	H. Lingenfelder..	Baltimore.....
Massachusetts..	Geo. H. Lyman....	Boston.....	Thomas Talbot...	Billerica.....
Michigan.....	Dexter M. Ferry..	Detroit.....	D. E. Alward.....	Clare.....
Minnesota.....	Ely S. Warner.....	St. Paul.....	E. M. Johnson.....	Minneapolis...
Mississippi.....	Sam. P. Hurst.....	Clarksdale....	T. V. McAllister...	Vicksburg.....
Missouri.....	Chauncey I. Filley	St. Louis.....	Albert Griffen....	St. Louis.....
Montana.....	L. H. Hershfield..	Helena.....	T. B. Miller.....	Helena.....
Nebraska.....	E. J. Hainer.....	Aurora.....	T. E. Sedgwick....	York.....
Nevada.....	R. K. Colcord.....	Carson City....	E. D. Vanderlieth.	Carson City...
New Hampshire	John A. Spalding.	Nashua.....	James O. Lyford..	Concord.....
New Jersey.....	Franklin Murphy.	Newark.....	John Y. Foster....	Newark.....
New Mexico.....	E. L. Bartlett.....	Santa Fe.....	Max Frost.....	Santa Fe.....
New York.....	Chas. W. Hackett.	Utica.....	John S. Kenyon...	Syracuse.....
North Carolina..	Albert E. Holton..	Winston.....	W. S. Hyams.....	Bakersville....
North Dakota...	E. C. Cooper.....	Fargo.....	A. B. Guptill.....	Fargo.....
Ohio.....	Chas. L. Kurtz....	Columbus.....	Wm. S. Matthews..	Columbus.....
Oklahoma.....	William Grimes...	Kingfisher....	H. F. Ardery.....	Guthrie.....
Oregon.....	Solomon Hirsch...	Portland.....	O. N. Denny.....	Portland.....
Pennsylvania..	John P. Elkin....	Indiana.....	Jere B. Rex.....	Huntingdon....
Rhode Island...	Hunter C. White..	Providence....	W. R. Andrews....	Meadville.....
South Carolina..	R. R. Tolbert, Jr..	Greenwood.....	E. F. Warner.....	Providence....
South Dakota...	J. D. Elliott.....	Tyndall.....	J. H. Johnson.....	Charleston.....
Tennessee.....	D. B. Cliffe.....	Franklin.....	R. S. Person.....	Yankton.....
Texas.....	E. H. R. Green....	Dallas.....	A. M. Tillman....	Nashville.....
Vermont.....	Olin Merrill.....	Enosburg Falls	W. E. Easton.....	San Antonio...
Virginia.....	William Lamb...	Norfolk.....	F. E. Burgess.....	Burlington....
Washington....	Scott Swetland...	Vancouver.....	Asa Rogers.....	Petersburg....
West Virginia...	W. M. O. Dawson..	Kingwood.....	F. J. Kinghorn...	Vancouver....
Wisconsin.....	Edwin D. Coe.....	Whitewater....	A. B. White.....	Parkersburg...
Wyoming.....	Francis E. Warren	Cheyenne.....	John M. Ewing...	Milwaukee....
United States...	Mark Hanna.....	Cleveland.....	B. F. Fowler.....	Cheyenne.....
			Charles Dick.....	Akron, O.....

It is truth that makes a man angry.

National Democratic State Chairmen and Committees.

STATES.	Chairmen.	Post Offices.	Secretaries.	Post Offices.
Alabama	Thomas H. Clark.....	Montgomery.	George W. Jones.....	Montgomery.
Connecticut...	William J. Mills.....	New Haven...	Fred. J. Brown.....	Waterbury.
Delaware.....	John S. Dobbs.....	Wilmington..	John Dunning.....	Wilmington.
Florida	Arthur Meigs.....	Jacksonville.	James I. Munoz.....	Jacksonville
Georgia.....	Thomas P. Corrigan..	Atlanta.....	Hooper Alexander...	Atlanta.
Illinois	A. A. Goodrich.....	Chicago.....	R. E. Spangler.....	Chicago.
Indiana.....	Samuel C. Pickens...	Indianapolis.	George W. McDonald	Indianapolis
Iowa.....	W. C. Mullin.....	Marshalltown	Vacant.....	
Kansas	Eugene Hagan	Topeka.....	Charles J. Lantry....	Topeka.
Kentucky.....	George W. Davie.....	Louisville....	A. J. Carroll.....	Louisville.
Louisiana.....	Donelson Caffery ...	Franklin.....	E. J. Faure.....	New Orleans
Maine.....	C. Vey Holman.....	Rockland.....	Vacant.....	
Maryland.....	John J. Donaldson...	Baltimore....	Leigh Bonsal.....	Baltimore.
Massachusetts	Nathan Mathews, Jr.	Boston.....	John C. Lane.....	Boston.
Michigan.....	W. R. Shelby.....	Grand Rapids	J. C. Holt.....	Grand Rapids
Minnesota....	Robert A. Smith.....	St. Paul.....	Jared How	St. Paul.
Missouri.....	Thomas Campbell...	St. Louis.....	Ed. Cunningham....	St. Louis.
Nebraska.....	T. J. Mahoney.....	Omaha.....	Frank Haller.....	Omaha.
N. Hampshire.	Gordon Woodbury...	Manchester..	E. J. Burnham.....	Manchester.
New Jersey....	Henry D. Winton....	Hackensack..	A. T. Holly	Hackensack.
New Mexico...	W. B. Childers.....	Albuquerque.	William C. Meehan..	Albuquerque.
New York.....	Robert A. Widemann	New York....	Calvin Tomkins.....	New York.
North Carolina	W. E. Ashley.....	Raleigh.....	Louis de Lacroix....	Raleigh.
Ohio.....	James Caren.....	Columbus....	H. H. McMahon.....	Columbus.
Oregon	Walter E. Carli.....	Oregon City..	Thomas G. Greene...	Oregon City.
Pennsylvania..	W. B. Given	Philadelphia.	J. P. J. Sendorfer...	Philadelphia.
Rhode Island..	Augustus S. Miller...	Providence...	Samuel H. Bullock...	Providence.
South Dakota.	John B. Hanten.....	Watertown...	W. D. Morris.....	Watertown.
Tennessee.....	Michael Savage.....	Nashville....	Vacant.....	
Texas.....	John N. Simpson.....	Dallas	J. A. Reed	Dallas.
Vermont.....	John D. Johnson.....	Northfield...	C. F. Childs.....	Brattleboro.
Virginia.....	T. M. Logan.....	Richmond....	Harvey L. Wilson...	Richmond.
West Virginia.	Z. T. Vinson	Huntington ..	J. T. Waters.....	Huntington.
Wisconsin.....	Ellis B. Usher	Milwaukee...	John B. Webb.....	Milwaukee.
United States.	W. D. Bynum.....	62 William St.		New York.

People's Party, National Committee.

National Executive Committee.—Chairman, Marion Butler, Raleigh, N. C.; secretary, J. A. Edgerton, Lincoln, Neb.; treasurer, M. C. Rankin, Terre Haute, Ind.; J. R. Sovereign, Sulphur Springs, Ark.; George F. Washburn, Boston; C. F. Taylor, Philadelphia, Penn.; J. W. Breidenthal, Topeka, Kan.; H. W. Reed, Brunswick, Ga.; John S. Dore, Fresno, Cal.

MEMBERS NATIONAL COMMITTEE.

Alabama.—R. F. Kolb, Birmingham; R. H. Seymour, Livingston; K. S. Woodruff, Anniston.

Arkansas.—J. R. Sovereign, Sulphur Springs; A. W. Files, Little Rock; J. O. A. Bush, Prescott.

California.—John S. Dore, Fresno; E. M. Hamilton, Los Angeles; F. Houghton, Corning.

Colorado.—John C. Bell, Montrose; H. S. Tompkins; J. H. Voorhees, Pueblo.

Connecticut.—William W. Wheeler, Meriden; Dr. Joshua Perkins, Danielson; H. C. Baldwin, Naugatuck.

Delaware.—Benjamin Lundy Kent, Farmington; Charles Beadenkopf, Wilmington; George L. Norris, Wilmington.

Florida.—S. S. Harvey, Quintette; F. H. Lytle, Stanton; J. F. Rhoades, Jacksonville.

Georgia.—J. L. Sibley, Marietta; H. W.

Reed, Brunswick; Cary J. Thornton, Columbus.

Idaho.—J. H. Anderson, Weiser; A. J. Cook, Payette; Ed. Boyce, Wallace.

Illinois.—H. E. Taubeneek, Marshall; J. D. Hess, Pittsfield; Eugene Smith, Chicago.

Indiana.—Joshua Strange, Arcana; D. H. Fernandes, Anderson; W. S. Austin, New Albany.

Iowa.—W. H. Robb, Creston; S. B. Crane, Des Moines; J. E. Anderson, Forest City.

Kansas.—John W. Breidenthal, Topeka; J. M. Allen, Erie; W. D. Vincent, Clay Center.

Kentucky.—A. H. Cardin, Marton; John G. Blair, Carlisle; W. B. Bridgeford, Frankfort.

Louisiana.—A. A. Gunby, Monroe; J. T. Howell, Baton Rouge; E. C. Dillon, Many.

Learn to creep before you leap.

People's Party, National Committee.—Continued.

Maine.—L. C. Bateman, Auburn; L. W. Smith, Vinalhaven; Henry Betts, Ellsworth.

Maryland.—C. M. Kemp, Baltimore; Hiram Vrooman, Baltimore; T. Canfield Jenkins, Pomonkey.

Massachusetts.—George F. Washburn, Boston; E. Gerry Brown, Brockton; P. J. Gardener, Danvers.

Michigan.—John O. Zabel, Petersburg; James E. McBride, Grand Rapids; Benjamin Colvin, St. Charles.

Minnesota.—W. R. Dobbin, Minneapolis; Thomas J. Meighen, Forestville; J. M. Bowler, Bird Island.

Mississippi.—R. K. Prewitt, Ackerman; Frank Burkitt, Okolona; T. L. McGehee, Summit.

Missouri.—P. J. Dixon, Chillicothe;

J. H. Hillis, McFall; Dr. De Witt Eskew, Poplar Bluffs.

Montana.—A. E. Spriggs, Townsend, M. L. Stewart, Mason; Mrs. Ella K. Haskell, Helena.

Ohio.—J. S. Coxey, Massillon; Hugh Freyor, Cleveland; D. D. Chidester, New Waterford.

Oregon.—J. W. Marksbury, Gold Hill; John C. Lucy, John Day, J. W. Jory, Salem.

Pennsylvania.—Jerome B. Aiken, Washington; W. Morris Deisher, Reading; V. A. Lotier, Danville.

South Dakota.—A. J. Plowman, Deadwood; Henry S. Volkmar, Millbank; H. P. Smith, Madison.

Tennessee.—J. H. McDowell, Union City; J. P. Buchanan, Wayside; J. W. James, Chattanooga.

Chairmen and Secretaries, Democratic State Committees.

Alabama, C. M. Shelley, chairman, Birmingham; N. L. Miller, sec., Birmingham.

Arkansas, Carroll Armstrong, chairman, Morrilton; Gray Carroll, sec., Little Rock.

Arizona, B. A. Fickas, chairman, Phoenix; Frank B. King, sec., Phoenix.

California, W. H. Alford, chairman, San Francisco; R. P. Troy, sec., San Francisco.

Colorado, Olney Newell, sec., Leadville.

Connecticut, Alex. Troupe, chairman, New Haven; F. J. Brown, sec., New Haven.

Delaware, John Biggs, chairman, Wilmington; Wm. Saulsbury, sec., Dover.

District of Columbia, T. B. Kalbfus, chairman, Washington; C. F. Cook, sec., Washington.

Florida, W. A. Rawls, chairman, Tallahassee; Headquarters, Jacksonville.

J. C. Cooper, sec., Jacksonville.

Georgia, A. S. Clay, chairman, Atlanta; A. E. Barnett, sec., Atlanta.

Idaho, J. A. McGee, chairman, Boise City; W. C. Fritter, sec., Nampa.

Illinois, W. H. Hinrichsen, chairman, Springfield; Theodore Nelson, sec., Chicago.

Indiana, P. M. Martin, chairman, Spencer; S. L. Wallace, sec., Indianapolis.

Iowa, C. A. Walsh, chairman, Ottumwa; E. M. Carr, sec., Manchester.

Kentucky, Maj. P. P. Johnston, chairman, Lexington; G. W. Richardson, sec., Louisville.

Kansas, J. M. Love, chairman, Topeka; W. H. C. Pepperell, sec., Concordia.

Louisiana, M. J. Cunningham, chairman, New Orleans; R. S. Lundry, sec., New Orleans.

Maine, George E. Hughes, chairman, Bath; F. E. Beane, sec., Hallowell.

Maryland, Battersley W. Talbott, chairman, Rockville; headquarters, Baltimore. Spencer Watkins, sec., Bethesda.

Massachusetts, John W. Corcoran, chairman, Boston.

Michigan, F. A. Baker, chairman, Detroit; G. W. Mead, sec., Detroit.

Minnesota, L. A. Rosing, chairman, St. Paul; E. M. Pope, sec., St. Paul.

Mississippi, C. P. Miller, chairman, Meridian; D. B. Porter, sec., Jackson.

Missouri, S. B. Cook, chairman, St. Louis; T. B. Love, sec., St. Louis.

Montana, W. M. Cockrell, chairman, Great Falls; David Marks, sec., Butte.

Nebraska, J. C. Dahlman, chairman, Omaha; Lee Hardman, sec., Omaha.

Nevada, J. R. Ryan, chairman, Virginia; T. H. Crane, sec., Mound House.

New Hampshire, J. T. Amey, chairman, Concord; D. M. White, sec., Concord.

New Jersey, F. L. Price, chairman, Newark; W. G. Fisk, sec., Jersey City.

New York, Elliot Danforth, chairman; Poughkeepsie; John J. Hudson, sec., Gloversville.

North Carolina, Clement Manley, chairman, Raleigh; J. W. Thompson, sec., Raleigh.

North Dakota, Thomas Kleinogal, chairman, Fargo; E. C. Carruth, sec., Grand Forks.

New Mexico, J. H. Christ, chairman, Santa Fe; Rafael Romero, sec., Las Vegas.

Ohio, Dan. McConville, chairman, Columbus; W. A. Taylor, sec., Columbus.

Oklahoma, E. L. Dunn, chairman, Oklahoma City; J. S. Lindsay, sec., Oklahoma City.

Oregon, F. A. E. Starr, chairman, Portland; Napoleon Davis, sec., Portland.

Pennsylvania, J. M. Garman, Allentown; Matt. Savage, sec., Clearfield.

Rhode Island, F. P. Owen, chairman, Scituate; J. E. Conley, sec., Providence.

South Carolina, D. H. Tompkins, chairman, Columbia; U. X. Gunter, Jr., sec., Columbia.

South Dakota, J. A. Bowler, chairman, Sioux Falls; F. Begelmeier, sec., Sioux Falls.

Chairmen and Secretaries, Democratic State Committees.—Continued.

Tennessee, J. M. Coleman, chairman, Memphis; S. B. Williamson, sec., Nashville.
 Texas, J. W. Blake, chairman, headquarters, Mexia; J. H. Pleasants, sec., Austin.
 Vermont, H. F. Bringham, chairman, Barkersfield; J. H. Sonter, sec., Middleb'g.
 Utah, O. W. Powers, chairman, Salt Lake City; E. A. McDaniels, sec., Salt Lake City.
 Virginia, J. T. Ellyson, chairman, Richmond; J. B. Bigger, sec., Richmond.
 Washington, H. T. Jones, chairman, Spokane; Thomas Malony, sec., Tacoma.

West Virginia, Andrew Edmiston, chairman, Weston; William H. Ohley, sec., Charleston.
 Wisconsin, G. W. Peck, chairman, Milwaukee; C. J. Noel, sec., Milwaukee.
 Wyoming, C. E. Blydenburgh, chairman, Rawlins; Kirk Dwyer, sec., Little Medicine.
 Indian Territory, John Galt, chairman, Ardmore.
 United States, James K. Jones, chairman, Washington, Ark.; Wm. Walsh, sec., Ottumwa, Ia.

Prohibition Party, Chairmen State Committees.

Alabama, Rev. C. W. Buck, Montgomery.
 Arkansas, G. C. Christian, Eureka Springs.
 California, F. E. Coulter, Sacramento.
 Colorado, F. I. Willsea, Denver.
 Connecticut, H. B. Brown, East Hampton.
 Delaware, R. H. Cooper, Cheswold.
 Georgia, Dr. J. O. Perkins, Atlanta.
 Idaho, H. A. Lee, Boise City.
 Illinois, O. W. Stewart, Mackinaw.
 Indiana, L. M. Crist, Thorntown.
 Iowa, M. W. Atwood, Estherville.
 Kansas, M. Williams, Lansing.
 Kentucky, Dr. J. H. Moore, 519 Main St., Cincinnati, Ohio.
 Louisiana, headquarters, New Orleans.
 Maine, N. F. Woodbury, Auburn.
 Maryland, T. M. Prentiss, 208 N. Calvert Street, Baltimore.
 Massachusetts, F. M. Forbush, 55 State Street, Boston.
 Michigan, C. P. Russell, 200 Clifford Street, Detroit.
 Mississippi, Henry Ware, Pass Christian.
 Minnesota, G. W. Higgins, Minneapolis.
 Missouri, C. E. Stokes, 1112 Newstead Avenue, St. Louis.

Montana, J. M. Waters, Bozeman.
 Nebraska, L. G. Parker, Raymond.
 Nevada, Jacob Stiner, Reno.
 New Hampshire, H. O. Jackson, Littleton.
 New Jersey, R. J. S. White, Montclair.
 New York, Dr. M. Downing, Poughkeepsie.
 North Carolina, Edwin Shaver, Salisbury.
 North Dakota, E. A. Taylor, Salisbury.
 Ohio, Gen. W. S. Payne, Fostoria.
 Oregon, C. M. Weister, 718 Marquam B'd, Portland.
 Pennsylvania, C. R. Jones, 1915 Norris Street, Philadelphia.
 Rhode Island, J. A. Williams, Providence.
 South Dakota, J. A. Lucas, Sioux Falls.
 Tennessee, J. A. Tate, Fayetteville.
 Texas, E. A. Wingo, Willis Point.
 Vermont, F. A. Shepard, Fair Haven.
 Virginia, W. T. Bundick, Onancock.
 Washington, Judge Green, Seattle.
 West Virginia, J. H. Holt, Moundsville.
 Wisconsin, J. E. Clayton, 151 6th Street, Milwaukee.
 United States, Samuel Dickie, Albion, Mich.

National or Liberty Party.

General Officers, L. B. Logan, chairman, Alliance, Ohio. J. P. St. John, vice chairman, Olathe, Kansas. H. H. Roser, secretary, Chicago, Ill. J. M. Dunlap, treasurer, Franklin, Ind.

State Chairmen.

Arkansas, Alex. McKnight, Arkadelphia.
 California, G. D. Kellogg, New Castle.
 Colorado, W. P. Herrick, Denver, 1017 15th Street.
 Delaware, C. F. Fisher, Drawbridge.
 Georgia, J. B. Stevens, Fitzgerald.
 Illinois, J. W. Wells, 539 Washington Blvd., Chicago.
 Indiana, Hon. W. D. Wattles, Reynolds.
 Iowa, B. F. Wright, Charles City.
 Kansas, W. L. Humbert, Kansas City.
 Kentucky, J. W. Sawyer, 356 E. Market Street, Louisville.
 Maine, A. W. Parsons, Foxcroft.

Maryland, A. G. Eichelberger, 301 Falls Road, Baltimore.
 Massachusetts, Geo. Kempton, Sharon.
 Michigan, H. A. Reynolds, Pontiac.
 Missouri, D. W. King, Maitland.
 Montana, Wilder Nutting, Butte.
 Nebraska, C. E. Behtley, Lincoln.
 New Hampshire, C. E. Drury, Bath.
 New Jersey, G. H. Strobell, 44 Hill Street, Newark.
 New York, W. Organ, Box 269, New York.
 North Carolina, W. H. Rogers, Durham.
 Ohio, J. W. Sharp, Mansfield.
 Pennsylvania, D. G. Hendricks, Chester.
 Rhode Island, E. P. Durfee, Arlington.
 Tennessee, C. L. Brewer, Lancing.
 Texas, Ed. S. Rogers, Hillsboro.
 Vermont, D. A. Kneeland, Waitsfield.
 Washington, W. H. Gilstrap, Tacoma.
 West Virginia, W. C. Henson, Lewiston.
 Wisconsin, A. R. Buckman, Norrie.

THE GREAT PROBLEMS OF 1898

Politics of State Legislatures.

<i>Alabama.</i>						
	1897.			1895.		
	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.
Dem.	22	73	95	24	65	89
Rep.	2	4	6	1	1	2
Pop.	9	23	32	8	34	42
Dem. Maj.	11	46	57	15	30	45

<i>California.</i>						
	1897.			1895.		
	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.
Dem.	8	8	16	15	15	30
Rep.	30	47	77	25	62	87
Pop.	2	2	2	3	3	3
Fus.	22	23	45			
Rep. Maj.	14	14	10	44	54	

<i>Connecticut.</i>						
	1897.			1895.		
	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.
Dem.	33	33	1	46	48	
Rep.	24	219	243	23	205	227
Pop.				1	1	
Rep. maj.	24	186	210	22	158	178

<i>Florida.</i>						
	1897.			1895.		
	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.
Dem.	31	62	93			
Rep.		3	3			
Pop.	1	2	3			
Dem. Maj.	30	57	87			

<i>Idaho.</i>						
	1897.			1895.		
	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.
Dem.	12	29	41	1	1	2
Rep.		1	1	11	26	32
Silver.	9	19	23	6	9	15
Dem. Maj.	3	10	17	4	16	15

<i>Indiana.</i>						
	1897.			1895.		
	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.
Dem.	14	39	53	18	19	37
Rep.	33	51	84	32	81	113
Pop.	3	9	12			
Rep. Maj.	16	3	19	14	62	76

<i>Kansas.</i>						
	1897.			1896.		
	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.
Dem.	2	6	8	1	2	3
Rep.	11	49	60	16	92	108
Pop.	27	67	94	23	31	54
Silver rep.		3	3			

<i>Louisiana.</i>						
	1897.			1895.		
	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.
Dem.	36	69	105	37	96	133
Rep.	4	9	13		2	2
Pop.	2	16	18			
Ind.		6	6			
Dem. Maj.	30	38	68	37	94	131

<i>Maryland.</i>						
	1895 to 1898.					
	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.
Dem.	14	23	37			
Rep.	12	68	80			
Rep. Maj.	*2	45	43			
*Dem. Maj.						

<i>Arkansas.</i>						
	1897.			1895.		
	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.
Dem.	30	87	117	31	88	119
Rep.	1	2	3	1	3	4
Pop.	1	11	12		9	9
Dem. Maj.	28	74	102	30	76	106

<i>Colorado.</i>						
	1897.			1895.		
	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.
Dem.	4	20	24	1		1
Rep.	16	11	27	16	41	57
Pop.	14	33	47	18	24	42
Silver,	1	1	2			

<i>Delaware.</i>						
	1897.			1895.		
	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.
Dem.	5	20	25	5	6	11
Rep.	4	1	5	4	15	19
Dem. Maj.	1	19	20	R. Maj.	9	8

<i>Georgia.</i>						
	1897.			1895.		
	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.
Dem.	37	142	179	38	126	164
Rep.	1	3	4	1	2	3
Pop.	6	30	36	7	47	52
Dem. Maj.	30	109	139	30	77	109

<i>Illinois.</i>						
	1897.			1895.		
	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.
Dem.	11	64	77	19	61	80
Rep.	39	87	126	32	92	124
Pop.	1	2	3			
Rep. Maj.	27	21	48	13	31	44

<i>Iowa.</i>						
	1897.			1895.		
	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.
Dem.	7	20	27	7	20	27
Rep.	43	80	123	43	80	123
Rep. Maj.	36	60	96	36	60	96

<i>Kentucky.</i>						
	1897.			1895.		
	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.
Dem.	22	44	66	22	46	68
Rep.	16	54	70	16	52	68
Pop.		2	2		2	2

<i>Maine.</i>						
	1897.			1895.		
	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.
Dem.		6	6		5	5
Rep.	31	145	176	31	146	177
Rep. Maj.	31	139	170	31	141	172

<i>Massachusetts.</i>						
	1897.			1896.		
	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.
Dem.	5	38	43	7	57	64
Rep.	35	197	232	33	182	215
Ind.		4	4			
Rep. & Dem.		1	1			
Rep. Maj.	30	154	184	26	125	151

Fair words butter no parsnips.

Politics of State Legislatures.—Continued.

Michigan.						
1897.				1895.		
	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.
Dem.	5	17	22		1	1
Rep.	27	83	110	32	99	131
	—	—	—		—	—
Rep. Maj.	22	66	88	32	98	130

Mississippi.

Dem. wholly.

<i>Montana.</i>						
	1897.			1895.		
Dem.	9	44	53	5	2	7
Rep.	11	8	19	13	44	57
Dem. & Pop.				1	2	3
Pop.	3	16	19	2	12	14
Pop & Ind R					1	1

<i>Nevada.</i>						
	1897.				1895.	
Dem.	1	1	2			
Rep.	4	2	6	3	12	15
Sil.	9	26	35	9	17	26
Ind.	1	1	2	3	1	4
	—	—	—	—	—	—
Sil. Maj.	3	22	25	3	4	7

<i>New Jersey.</i>						
	1897.			1896.		
Dem.	3	4	7	3	17	20
Rep.	18	56	74	18	43	61
Rep. Maj.	15	52	67	15	26	39

<i>North Carolina.</i>						
	1897.			1895.		
Dem.	9	36	45	8	46	54
Rep.	17	49	66	18	38	56
Pop.	24	34	58	24	36	60

<i>Ohio.</i>						
	1897.			1895.		
Dem.	6	25	31	6	22	28
Rep.	30	87	117	25	85	110
Pop.	1		1			
	—	—	—	—	—	—
Rep Maj.	24	62	85	19	63	82

<i>Pennsylvania.</i>						
	1897.			1895.		
Dem.	6	33	39	6	29	35
Rep.	44	171	215	43	174	217
Pop.	—	—	—	1	1	2
Rep. Maj.	38	138	176	36	144	180

<i>Rhode Island.</i>						
	1897.			1895.		
Dem.	2	4	6	2	3	5
Rep.	36	68	104	34	67	101
Rep. Maj.	34	64	98	32	64	96

Minnesota.						
1897.						
	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.
Dem.	3	23	26	3	10	13
Rep.	46	91	137	46	95	141
Pop.	5		5	5	9	14
Rep. Maj.	38	68	106	38	76	114

<i>Missouri.</i>						
1897.						
					1895.	
Dem.	19	79	98	19	58	77
Rep.	14	47	61	14	80	94
Pop.		4	4			
Rep & Pop.	1		1			
Dem. & Pop.		10	10			
Dem. Maj.	4	18	22	5	R. 12	R. 17

Nebraska.						
	1897.				1896.	
Dem.	1	5	6		8	8
Rep.	8	32	40	25	72	97
Pop.	6	23	29	8	20	28
Fus.	16	40	56			

<i>New Hampshire.</i>						
	1897.			1895.		
Dem.	2	66	68	3	101	104
Rep.	22	291	313	21	262	283
Rep. Maj.	20	225	245	18	161	179

<i>New York.</i>			
1897.			
Dem.	14	35	49
Rep.	35	114	149
Ind.	1	1	2
Rep. Maj.	20	78	97

<i>North Dakota.</i>						
	1897.				1895.	
Dem.	2	1	3	2	5	7
Rep.	23	44	67	25	49	74
Pop.	6	16	22	4	8	12
Ind.		1	1			
Rep. Maj.	15	26	41	19	36	55

<i>Oregon.</i>			
		1897.	
Dem.	3	4	7
Rep.	22	34	56
Pop.	3	13	16
Mitchell, Rep.	1	2	3
Rep. & Taxpayers' League,	1	1	2
Mitchell, Rep. & Pop.		1	1
Union Bimetallic,		3	3
Txpyrs Lg. & Mitchell Rep.		1	1
Vacancies (by tie.)		1	1
Rep. Maj.	14	8	22

<i>South Carolina.</i>						
	1897.			1895.		
	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.
Dem.	36	123	159	36	121	157
Rep.	—	1	1	—	3	3
Dem. Maj.	36	122	158	36	118	154

Sadness and gladness succeed each other.

Politics of State Legislatures.—Continued.

Tennessee.							South Dakota.							
1897.							1897.							
Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.
Dem.	25	63	88	20	60	80	Rep.	17	38	55	33	68	101	
Rep.	8	32	40	10	32	42	Fus.	26	45	71	10	15	25	
Pop.	—	4	4	3	7	10		—	—	—	—	—	—	
Dem. Maj.	17	27	44	7	21	28	Fus Maj.	9	7	16	R. 23	53	76	
Utah.							Texas.							
1897.							1897.							
Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.
Dem.	18	42	60	6	14	20	Dem.	50	117		49	103	152	
Rep.	—	3	3	12	31	33	Rep.	1	3			3	3	
Dem. Maj.	18	39	57	6	17	13	Pop.	2	6		3	22	26	
Virginia.							Vermont.							
1896-97.							1897.							
Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.
Dem.	34	68	102				Dem.		17	17		11	11	
Rep.	3	17	20				Rep.	30	228	258	30	228	258	
Pop.	2	12	14				Pop.					1	1	
Ind.	1	3	4				Pro.					1	1	
Dem. Maj.	28	36	64				Rep. Maj.	30	211	241	30	215	245	
West Virginia.							Washington.							
1897.							1897.							
Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.
Dem.	4	27	32	12	22	34	Dem.		15	5		4	9	
Rep.	20	41	61	13	63	76	Rep.	13	15	28	26	54	80	
Pop.				1		1	Pop.	21	63	84	3	20	23	
Rep. Pop.	1		1				Pop. Maj.	8	48	56	R. 18	30	48	
Dem. Pop.		2	2											
Rep. Maj.	14	12	26	41	41									
Oklahoma, 1897.							Wisconsin.							
Council. Ho. Jt. bal.							1897.							
Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.	Sen.	Ho.	Jt. bal.
Dem.		3	3				Dem.	4	9	13	13	19	32	
Rep.	1		1				Rep.	29	91	120	20	81	101	
Free silver, 12	23	35					Rep. Maj.	25	82	107	7	62	69	
Sil. Maj.	11	20	31											

Changes in political complexions of states and of state legislatures as a result of elections of 1898 will be found in the official election reports following.

Ohio has passed a very stringent law against corrupt practices, which forbids any candidate for representative in congress, or any office created by the constitution or laws of the state, to contribute or promise for campaign purposes, directly or indirectly, more than one hundred dollars for any number of voters up to five thousand, one dollar and a half for each additional one hundred voters up to twenty-five thousand, one dollar for each additional one hundred voters between twenty-five thousand and fifty thousand, and nothing for any number of voters above the larger number. This makes six hundred and fifty dollars the maximum contribution which any candidate can make. Returns of receipts and expenditures in great detail, with names, dates and amounts, are required from every candidate for nomination or election, and from every committee or person receiving or expending money or contracting obligations for a committee. No officer elected can receive his commission or enter upon his duties till his return has been made. Any violation of the statute, or any other act forbidden by law, committed by the candidate or his agent, or any political committee or party or their agent, with his connivance or that of his agents, makes his election void, and proceedings to vacate his office on these grounds may be brought at any time during the incumbent's term. Such proceedings are in every way made easy and are given precedence in the courts.

Congressional Election Returns.

INCLUDING LIST OF PRESENT MEMBERS OF CONGRESS, THEIR POLITICS, AND THE VOTE IN DETAIL FOR THE LAST TWO CONGRESSIONAL ELECTIONS.

The following table, compiled largely from the Congressional directories, gives the results of Congressional elections by states and districts, including the vote by parties in detail and total; the vote by districts in detail and total. For purposes of comparison, statistics are given for the elections of 1894. The table also, as will be seen, includes the names and politics of present members of Congress, both senators and representatives. The senators are elected by the state legislature and not by popular vote. The terms of the senators appear after their respective names. The valuable and comprehensive table becomes even more complete when consulted in connection with maps of Congress districts, in year book of 1897. The publications of the two years form a complete summary of recent Congressional elections, districts and membership. At the congressional elections in November, 1898, candidates will be voted upon for every seat in the House of Representatives.

Abbreviations: Dem., democratic; Rep., republican; Pop., populist; Pro., prohibition; Fus., fusion of democrats and populists; G. D., gold democrat; S. Rep., silver republican. Small letters, r, d, or p, after names of congressmen, signify republican, democrat or populist, respectively; s indicates silver party.

ALABAMA.

Senators, { John T. Morgan, d, term 1894-1901.
Edmund W. Pettus, d, term 1897-1903.

Representatives.	Votes in 1896.					Votes in 1894.			
	Dem.	Rep.	Pop.	G. D.	Total vote.	Dem.	Rep.	Pop.	Total vote.
1. Geo. W. Taylor, d,	11,890	4,281	695		16,866	6,314		898	7,213
2. J. F. Stallings, d,	11,703		3,856	5,631	21,190	9,728		5,324	15,052
3. Henry D. Clayton, d,	11,671		4,759	5,754	22,184	10,719		5,713	16,432
4. Thos. S. Plowman, d,	10,317		7,346	658	18,321	10,494			10,494
5. Willis Brewer, d,	13,537		8,742		22,329	10,651	7,406	9,903	27,960
6. John H. Bankhead, d,	10,148	4,985	3,295	4,985	23,413	5,721		2,622	8,343
7. M. W. Howard, p,	5,628	4,982	6,168	454	17,232	3,452	1,914	6,838	12,204
8. Joseph Wheeler, d,	15,640	11,630		333	27,603	8,901		6,474	15,375
9. O. W. Underwood, d,	13,499		5,618	2,316	21,433	7,319	6,153		13,472
Total by parties,	104,083	25,878	40,479	20,131	190,571	73,299	15,473	37,772	126,544

ARKANSAS.

Senators, { James K. Jones, d, term 1885-1903.
James H. Berry, d, term 1885-1901.

Representatives.	Votes in 1896.			Votes in 1894.			
	Dem.	Rep.	Total.	Dem.	Rep.	Pop.	Total.
1. P. D. McCulloch, Jr., d,	20,414	6,178	26,592	6,025		1,299	7,324
2. John S. Little, d,	19,109	6,483	25,592	5,097			5,097
3. Thomas C. McRae, d,	19,321	8,244	27,565	6,786			6,786
4. William S. Terry, d,	16,133	6,714	22,847	6,299	2,260	1,559	10,118
5. Hugh A. Dinsmore, d,	17,566	9,087	26,653	7,531	4,676	759	12,966
6. Stephen Brundidge, d,	17,106	5,040	22,146	6,439	3,153	312	9,904
Total by parties,	109,649	41,746	151,395	38,177	10,089	3,929	52,195

COLORADO.

Senators, { Henry M. Teller, r, term 1885-1903.
Edward O. Wolcott, r, term 1889-1901.

Representatives.	Votes in 1896.					Votes in 1894.				
	Fusion.	Rep.	Silver Rep.	Pro.	Total.	Dem.	Rep.	Pop.	Pro.	Total.
1. John F. Shafroth, s,		9,625	67,821	1,006	78,452	1,847	47,710	34,223	2,465	86,245
2. John C. Bell, p,	84,018	14,385			98,403	*47,803	42,366		2,032	92,201
Total by parties,	84,018	24,010	67,821	1,006	176,855	49,650	90,076	34,223	4,497	178,446

* Pop. Dem.

Threatened folks live long.

THE GREAT PROBLEMS OF 1898.

Congressional Election Returns.—Continued.

CALIFORNIA.

Senators, { George C. Perkins, r, term 1893-1903.
Stephen M. White, d, term 1893-1899.

Representatives.	Votes in 1896.					Votes in 1894.				
	Dem.	Rep.	Scat- ter- ing.	Pro.	Total.	Dem.	Rep.	Pop.	Pro.	Total.
1. J. A. Barham, r,	16,328	17,828	1,497	249	35,902	13,570	15,101	7,246	790	36,707
2. Marion DeVries, d,	24,434	18,613		974	44,021	15,732	19,302	8,946	866	44,846
3. Sam'l G. Hilborn, r,	19,778	16,119	387	327	36,611	13,103	15,795	5,162	637	34,697
4. Jas. G. Maguire, d,	19,074	10,940	968		30,982	14,748	9,785	5,627	388	30,548
5. Eugene F. Loud, r,	10,494	19,351	757	404	31,006	6,811	13,379	7,820	866	28,876
6. Chas. A. Barlow, p,	24,157	23,494	542	1,196	49,389	11,693	18,746	9,769	2,120	42,328
7. Curtis H. Castle, p,	*19,183	18,939	2,139	802	41,063	12,111	18,434	10,719	1,679	42,943
Total by parties,	133,448	125,284	6,290	3,952	268,974	87,768	110,542	55,289	7,346	260,945

* Dem. and Pop.

CONNECTICUT.

Senators, { Joseph R. Hawley, r, term 1881-1899.
Orville H. Platt, r, term 1879-1903.

Representatives.	Votes in 1896.					Votes in 1894.				
	S. Dem.	Rep.	Pro.	G. Dem.	Total.	Dem.	Rep.	Pop.	Pro.	Total.
1. * E. S. Henry, r.	10,859	27,623	501	2,114	41,097	15,115	20,322	509	569	36,515
2. † N. D. Sperry, r,	22,317	35,944	482	1,213	59,956	21,821	28,749	693	599	51,862
3. Chas. A. Russell, r,	7,665	15,269	408	500	23,842	9,047	12,095	150	477	21,769
4. Ebenezer J. Hill, r,	15,723	30,658	430	1,404	48,215	18,559	24,012	284	677	43,532
Total by parties,	56,564	109,494	1,821	5,231	173,110	85,178	64,542	1,636	2,322	153,678

* Soc. labor, 342. † Soc. labor, 666. ‡ Scattering, 16.

DELAWARE.

Senators, { George Gray, d, term 1887-1899.
Richard R. Kenney, d, term 1896-1901.

Representative (at large).	Votes in 1896.					Votes in 1894.				
	Dem.	Union Rep.	Rep.	Gold Dem.	Total.	Dem.	Rep.	Ind. Dem.	Pro.	Total.
1. *Levin I. Handy, d,	15,407	11,159	7,123	844	34,533	18,492	19,699	67	587	38,845

*462 Pro.

FLORIDA.

Senators, { Samuel Pasco, d, term 1893-1899.
Samuel R. Mallory, d, term 1897-1903.

Representatives.	Votes in 1896.					Votes in 1894.		
	Dem.	Rep.	G. Dem.	Pop.	Total.	Dem.	Pro.	Total.
1. Stephen M. Sparkman, d,	14,823	2,797			17,620	12,379	2,135	14,514
3. * Robert W. Davis, d,	14,376	6,576	1,156	855	22,963	9,229	2,334	11,563
Total by parties,	29,199	9,373	1,156	855	40,583	21,608	4,469	26,077

* Pro. 195.

IDAHO.

Senators, { George L. Shoup, r, term 1890-1901.
Henry Heitfield, pop., term 1897-1903.

Representative (at large).	Votes in 1896.				Votes in 1894.				
	Rep.	Pop.	S. Rep.	Total.	Rep.	Dem.	Peo.	Pro.	Total.
James Gunn, d,	6,054	13,487	8,984	28,525	10,383	5,834	7,547	173	23,937

Moles and misers live in their graves.

Congressional Election Returns.—Continued.

GEORGIA.

Senators, { Augustus O. Bacon, d, term 1894-1901.
Alexander S. Clay, d, term 1896-1903.

Representatives.	Votes in 1896.				Votes in 1894.		
	Dem.	Rep.	Pop.	Total.	Dem.	Pop.	Total.
1. Rufus E. Lester, d,	8,786	4,716	2,670	16,172	14,024	5,453	19,477
2. James M. Griggs, d,	7,454	3,868	3,035	14,357	10,073	6,064	16,137
3. Elijah B. Lewis, d,	7,459	3,096		10,555	9,037	3,062	12,099
4. William C. Adamson, d,	8,519	4,304		12,823	10,293	7,637	17,930
5. Leonidas F. Livingston, d,	9,258	6,715		15,973	7,781	5,264	13,045
6. Charles L. Bartlett, d,	8,236		4,696	12,932	11,671	6,147	17,818
7. John W. Maddox, d,	10,719	5,087	4,256	20,062	10,391	9,350	19,741
8. William M. Howard, d,	9,088	2,701	2,962	14,751	11,066	7,527	18,593
9. Farish C. Tate, d,	11,037	5,421	3,926	20,384	13,059	10,201	23,260
10. William H. Fleming, d,	10,119		7,105	17,224	20,942	13,498	34,440
11. William G. Brantley, d,	9,141		6,019	15,160	9,085	6,015	15,100
Total by parties,	99,816	35,908	34,669	170,393	127,422	80,218	207,640

INDIANA.

Senators, { David Turpie, d, term 1887-1899.
Charles W. Fairbanks, r, term 1897-1903.

Representatives.	Votes in 1896.					Votes in 1894.				
	Rep.	Dem.	Pop.	Fus'n	Total.	Rep.	Dem.	Pop.	Pro.	Total.
1. J. A. Hemenway, r,	21,907	20,856	1,313		44,076	20,535	18,245	3,820	333	42,933
2. Robert W. Miers, d,	20,759	21,757	2,625		45,141	17,624	15,896	3,217	318	37,055
3. Wm. T. Zenor, d,	19,192	22,475			41,661	19,709	19,153	1,109	250	40,221
4. *Wm. S. Holman, d,	22,769	23,594			46,363	17,905	17,471	703	554	36,633
5. George W. Faris, r,	25,270			24,915	50,185	18,286	16,416	1,549	712	36,963
6. H. U. Johnson, r,	24,083		21,867		45,950	22,724	10,707	1,598	987	36,016
7. a J. Overstreet, r,	29,075	24,187			53,262	29,900	25,557	2,360	697	58,594
8. Chas. L. Henry, r,	30,045	27,413			57,458	23,238	20,669	3,658	847	48,412
9. Chas. B. Landis, r,	23,616			23,367	46,983	25,479	19,644	1,353		46,476
10. E. D. Crumpacke, r,	28,259			23,120	51,379	20,858	16,923	2,296		40,874
11. † Geo. W. Steele, r,	27,781	23,102	339		51,222	25,008	21,079	2,414	1,431	49,932
12. J. M. Robinson, d,	22,196	22,752			44,948	19,658	17,145	2,195	423	39,421
13. L. W. Royse, r,	25,514			23,928	49,442	23,523	19,376	1,348	767	45,014
Total by parties,	320,466	186,136	26,144	95,330	628,076	284,527	238,281	27,620	8,116	558,544

* Prohib., 121. † Pro., 636. a Nat. Dem., 757.

IOWA.

Senators, { William B. Allison, r, term 1873-1903.
John H. Gear, r, term 1895-1901.

Representatives.	Votes in 1896.					Votes in 1894.					
	Rep.	Dem	Fus'n	Pro.	Total.	Rep.	Dem	Peo.	Pro.	Fus.	Total.
1. Samuel M. Clark, r,	21,944		18,649	285	40,878	17,583	13,747	2,065	497		33,892
2. Geo. M. Curtis, r,	23,202	19,882		a230	43,314	18,710	18,274	1,573	135		38,692
3. D. B. Henderson, r,	26,654	19,231			45,885	22,892				17,200	40,092
4. Thos. Updegraff, r,	26,659	17,791		269	44,719	20,457	13,267	1,256	670		35,650
5. Robt. G. Cousins, r,	26,133		18,765	364	45,262	21,251	15,487	1,218	526		38,482
6. J. F. Lacey, r,	21,970		20,769	268	43,007	18,418	11,587	5,663	502		36,170
7. J. A. T. Hull, r,	25,578		19,352		44,930	20,167	12,942				33,109
8. W. P. Hepburn r,	24,786		23,960		48,746	21,672				17,538	39,210
9. A. L. Hager, r,	24,904		22,522	137	47,563	21,874			367	18,817	41,058
10. J. P. Dolliver, r,	33,523		22,555	348	56,426	25,262				16,905	42,167
11. G. D. Perkins, r,	29,601		22,773	400	52,774	22,406	12,425	5,265	902		40,998
Totals by parties,	284,954	56,904	169,345	2,301	513,504	230,692	97,729	17,040	3,599	70,460	419,520

a Soc. labor, 2301.

Give him an inch and he'll take an ell.

Congressional Election Returns.—Continued.

ILLINOIS.

Senators, { Shelby M. Cullom, r, term 1883-1901.
 William E. Mason, r, term 1897-1903.

Representatives.	Votes in 1896.					Votes in 1894.				
	Rep.	Dem.	Pro.	G. D. and P.	Total.	Rep.	Dem.	Pop.	Pro.	Total.
1. James R. Mann, r,	51,582	*23,123	595	957	76,257	33,902	12,854	5,996	667	53,419
2. William Lorimer, r,	35,045	28,309	594	561	64,509	21,194	16,852	8,484		46,530
3. aH. R. Belknap, r,	22,075	†21,485	182	255	43,997	15,325	15,356	3,945		34,626
4. bDaniel W. Mills, r,	22,564	†20,454	236	419	43,673	14,017	10,638	2,812	395	27,862
5. cGeorge E. White, r,	23,053	19,975	257	233	43,518	18,732	14,875	4,143		37,750
6. Edward D. Cooke, r,	25,723	19,144	269	587	45,723	17,602	15,433	4,159		37,194
7. George E. Foss, r,	41,510	21,170	478	541	63,699	25,546	11,450	6,109		43,105
8. Albert J. Hopkins, r,	32,073	12,861	818		45,752	22,631	9,104	1,016	1,517	34,268
9. Robert R. Hitt, r,	32,949	15,241	818		49,008	24,177	11,301	1,028	1,311	37,817
10. George W. Prince, r,	31,459	15,741	536	†1,401	49,137	22,949	9,770	2,143	1,178	36,040
11. Walter Reeves, r,	24,765	18,514	557		43,836	19,372	14,390	2,216	1,077	37,055
12. Jos. G. Cannon, r,	28,566	18,613	478		47,657	21,122	11,925	1,575	935	35,557
13. Ves. Warner, r,	27,334	18,811	833		46,978	20,896	12,725	1,197	1,333	36,151
14. Jos. V. Graff, r,	25,144	23,413	471	†392	49,420	20,579	17,222	1,375	803	39,979
15. Benj. F. Marsh, r,	24,605	24,296	618		49,519	20,550	19,115	1,539	1,285	42,489
16. W. H. Hinrichsen, d,	20,472	26,615	463		47,550	17,776	17,816	1,929	802	38,323
17. Jas. A. Connolly, r,	23,813	23,714	484	217	48,228	20,441	17,503	1,405	1,317	40,666
18. Thomas M. Jett, f,	20,599	22,358	471		43,428	16,669	14,069	2,020	971	33,729
19. Andrew J. Hunter, d	22,793	24,011	344	†816	47,964	20,028	18,758	2,029	778	41,593
20. Jas. R. Campbell, d,	19,508	†22,359			41,867	17,429	15,775	2,769	649	36,622
21. John Baker, f,	23,179	†23,581			46,760	18,958	17,159	2,764	623	39,504
22. George W. Smith, r,	22,066	17,811			39,877	18,180	10,585	2,509	409	31,683
Total by parties,	600,877	461,599	9,502	6,379	1,078,357	448,075	313,675	63,162	16,050	840,962

a Scattering votes, 130. b Scattering votes, 504. c Second, 1813. *Dem., Pop., Free Sil.
 † Dem. and Pop. ‡ Pop. Fusion, 4th dist., 8,801; 5th, 133; 14th, 238.

KANSAS.

Senators, { Lucien Baker, r, term 1895-1901.
 William A. Harris, pop, term 1897-1903.

Representatives.	Votes in 1896.					Votes in 1894.				
	Fus.	Rep.	Pro.	G. D.	Total.	Rep.	Dem.	Peo.	Pro.	Total.
Jeremiah D. Botkin, p,*	168,400	158,440	1,947		328,487	147,858	26,093	114,459	4,898	293,308
1. Case Broderick, r,	19,713	22,115			41,828	19,202		a15,844	385	35,431
2. Mason S. Peters, p,	26,307	25,919			52,226	22,763	4,780	13,811	883	42,237
3. Edwin R. Ridgely, p,	27,034	22,499			49,533	20,631	2,695	18,505	16	41,847
4. Charles Curtis, r,	25,889	26,643			52,532	25,154	2,546	18,790	698	47,188
5. William D. Vincent, p,	19,735	19,101			38,836	18,228	2,778	15,831	524	37,361
6. N. B. McCormick, p,	18,637	16,006		1,547	36,190	16,391	2,934	16,588	307	36,220
7. Jerry Simpson, p,	29,889	26,966			56,855	27,444		a25,459	1,004	53,907
Total by parties,	335,604	317,389	1,947	1,547	656,487	297,671	41,826	239,287	8,715	587,499

*Rep. at large. a Fusion.

KENTUCKY.

Senators, { William Lindsay, d, term 1893-1901.
 William J. Deboe, r, term 1897-1903.

Representatives.	Votes in 1896.					Votes in 1894.				
	Dem.	Rep.	Pop.	Scat.	Total.	Rep.	Dem.	Peo.	Pro.	Total.
1. Charles K. Wheeler, d,	15,000	13,000	12,000		40,000	2,701	13,912	10,794	510	27,917
2. John D. Clardy, d,	23,535	17,276	68	433	41,312	10,381	13,363	4,385	458	28,587
3. John S. Rhea, d,						16,545	15,644	1,113		33,302
4. David H. Smith, d,	21,655	20,222	1,919	317	44,113	16,806	15,636		544	32,986
5. Walter Evans, r,	17,150	27,780		1,638	46,568	20,592	16,462			37,054
6. Albert S. Berry, d,	21,177	17,422			38,599	11,968	14,008	924		26,900
7.*Evan E. Settle, d,	18,826				18,826	13,576	13,677	262	554	28,069
8. George M. Davison, r,	15,629	18,110			33,739	12,155	13,505	322	759	26,741
9. Samuel J. Pugh, r,	21,591	22,014			43,605	19,058	18,396	487	62	38,003
10. T. Y. Fitzpatrick, d,	17,578	16,381			33,959	14,592	14,845			29,437
11. David G. Colson, r,	12,518	22,404		4,587	39,509	14,628	10,932	a4,975		30,535
Total by parties,	184,659	174,609	13,987	6,975	380,230	153,002	160,380	23,262	2,887	339,531

*Fusion, 17,019. a Ind. Rep.

Congressional Election Returns.—Continued.

LOUISIANA.

Senators, { Donelson Caffery, d, term 1895-1901.
 { Samuel D. McEnery, d, term 1897-1903.

Representatives.	Votes in 1896.					Votes in 1894.				
	Dem.	NRep.	Pop.	Rep.	Tot'l.	Rep.	Dem.	Peo.	Lab.	Total.
1. Adolph Meyer, d,	10,776	4,022	*113	401	15,312	6,676	13,405			20,081
2. Robert C. Davey, d,	10,269	1,344		5,235	16,848	7,211	14,864	504	370	22,949
3. Robert F. Broussard, d,	9,323	6,490	196	155	16,164	8,620	14,388	641		23,649
4. Henry W. Ogden, d,	10,775	647	4,726		16,148		12,257	5,932		18,189
5. Samuel J. Baird, d,	11,494		4,870		16,364		15,520	5,994		21,514
6. Sam'l M. Robertson, d,	11,872	3,686	924		16,482		7,981	2,230		10,211
Total by parties,	64,509	16,189	10,829	5,791	97,318	22,507	78,415	15,301	370	116,593

*Labor.

MAINE.

Senators, { Eugene Hale, r, term 1881-1899.
 { William P. Frye, r, term 1896-1901.

Representatives.	Votes in 1896.					Votes in 1894.				
	Rep.	Dem.	Pro.	Peo.	Total.	Rep.	Dem.	Pro.	Peo.	Total.
1. Thomas B. Reade, r,	19,029	8,800	604	169	28,602	17,085	8,901	587	311	26,884
2. Nelson Dingley, Jr. r,	22,400	8,424	457	1,094	32,375	18,108	8,065	514	1,691	28,378
3. Seth L. Milliken, r,	19,901	8,024	552	1,172	29,649	16,896	5,669	543	1,990	25,098
4. Chas. A. Boutelle, r,	21,269	9,048	932	894	32,143	17,389	6,870	970	1,311	26,540
Total by parties,	82,599	34,296	2,545	3,329	122,769	69,478	29,505	2,614	5,303	106,900

MARYLAND.

Senators, { Arthur P. Gorman, d, term 1881-1899.
 { George L. Wellington, r, term 1897-1903.

Representatives.	Votes in 1896.					Votes in 1894.				
	Rep.	Dem.	Pro.	Soc.L	Total.	Rep.	Dem.	Pro.	Peo.	Total.
1. Isaac A. Barber, r,	17,969	17,394	1,724		37,087	12,914	13,953	2,728	394	29,989
2. Wm. B. Baker, r,	28,530	23,163			51,693	19,291	19,100	1,816		40,207
3. Wm. S. Booze, r,	22,671	15,977	494	524	39,666	15,709	16,228	670		32,607
4. Wm. W. McIntire, r,	24,899	16,424	673		41,996	16,178	17,184	671		34,033
5. Sydney E. Mudd, r,	18,954	15,442	491		34,887	15,523	13,421	483	355	29,782
6. John McDonald, r,	22,400	18,437	817		41,654	19,709	16,742	1,097	307	37,855
Total by parties,	135,423	106,837	4,199	524	246,983	99,324	106,678	8,465	1,056	205,473

MASSACHUSETTS.

Senators, { George F. Hoar, r, term 1895-1901.
 { Henry Cabot Lodge, r, term 1893-1899.

Representatives.	Votes in 1896.				Votes in 1894.				
	Rep.	Dem.	Pro.	Total.	Rep.	Dem.	Pop.	Pro.	Total.
1. Ashley B. Wright, r,	18,075	8,579	993	27,647	14,018	9,961	839	584	25,402
2. Frederick H. Gillett, r,	19,793	7,778		27,571	15,480	7,924	1,050	746	25,200
3. Joseph H. Walker, r,	18,993	7,185		26,178	13,788	8,251	592	568	23,199
4. Geo. W. Weymouth, r,	20,062	8,847		28,909	16,992	8,432	774		26,198
5. William S. Knox, r,	17,786	11,303		29,094	14,372	12,341	763	316	27,792
6. William H. Moody, r,	19,947	7,460		27,407	16,206	5,747	1,772		23,725
7. William E. Barrett, r,	22,759	10,609		33,368	16,453	9,601	1,310	811	28,175
8. Samuel W. McCall, r,	22,054	7,590		29,644	15,188	8,747	756		24,691
9. John F. Fitzgerald, d,	7,819	13,979		21,798	11,459	9,545	511		21,515
10. Samuel J. Barrows, r,	17,747	14,259		32,006	9,833	7,113			16,946
11. Charles F. Sprague, r,	22,933	10,114		33,047	16,905	9,456	916		27,277
12. William C. Lovering, r,	21,107	6,354		27,461	15,865	6,359	2,065		24,289
13. John Simpkins, r,	17,685	5,993		23,678	13,497	8,548			22,045
Total by parties,	246,760	120,055	993	367,808	190,056	112,025	11,348	3,025	316,454

Leave well alone.

THE GREAT PROBLEMS OF 1898.

Congressional Election Returns.—Continued.

MICHIGAN.

Senators, { James McMillan, r, term 1895-1901.
 { Julius C. Burrows, r, term 1895-1899.

Representatives.	Votes in 1896.					Votes in 1894.				
	Rep.	Dem.	Pop.	Pro.	Total.	Rep.	Dem.	Pop.	Pro.	Total.
1. John B. Corliss, r,	23,638	18,889			42,527	18,605	13,441	778	238	33,062
2. Geo. Spaulding, r,	26,557	*25,061	155	517	52,290	23,708	17,596		2,032	43,336
3. Albert M. Todd, p,	24,040	579	24,466	441	49,520	20,115	8,075	3,217	2,217	33,624
4. Edw. L. Hamilton, r,	26,518	22,994			49,512	21,722	9,874	3,744	1,601	36,941
5. Wm. A. Smith, r,	26,819	*22,155			48,974	19,973	10,405	2,168	1,290	33,836
6. Sam'l W. Smith, r,	26,889	23,473			50,362	22,894	13,831	855	2,394	39,974
7. H. G. Snover, r,	22,761	*18,267			41,028	18,172	12,334	1,006	1,135	32,647
8. Ferd. Brucker, s.d,	20,158	20,992			41,150	16,565	10,118	1,537	1,572	29,792
9. R. P. Bishop, r,	20,418	*14,243		389	35,050	15,571	7,142	2,768	1,330	26,811
10. R. O. Crump, r,	19,535	*17,536			37,071	16,304	12,456	2,130	95	30,985
11. Wm. S. Mesick, r,	23,469	18,763		315	42,547	19,575	6,503	3,528	1,728	31,334
12. C. D. Sheldon, r,	29,612	12,479			42,091	20,935	7,897	3,053		31,885
Total by parties,	290,414	215,431	24,621	1,662	532,128	234,139	129,672	24,764	15,632	404,227

* Fusionist.

MINNESOTA.

Senators, { Cushman K. Davis, r, term 1893-1899.
 { Knute Nelson, r, term 1895-1901.

Representatives.	Votes in 1896.				Votes in 1894.				
	Rep.	Dem.	Pro.	Total.	Rep.	Dem.	Pop.	Pro.	Total.
1. James A. Tawney, r,	27,920	*17,218		45,138	22,663	10,479	4,675	1,249	39,066
2. James T. McCleary, r,	29,481	21,132	1,035	51,648	23,269	7,912	10,362	1,487	43,030
3. Joel P. Heatwolf, r,	24,483	*18,532	801	43,816	19,461	14,193	4,988	948	39,590
4. Frederick C. Stevens, r,	24,686	*14,444		39,130	20,573	10,168	5,055	589	36,385
5. Loren Fletcher, r,	24,508	21,521	742	46,771	20,465	11,506	7,043	1,039	40,053
6. Page Morris, r,	30,212	29,505		59,717	25,387	15,830	6,475		47,692
7. Frank M. Eddy, r,	27,264	*24,917		52,181	18,203	3,486	17,408	2,726	41,823
Total by parties,	188,554	147,269	2,578	338,401	150,021	73,574	56,006	8,038	287,639

* Fusionist.

MISSOURI.

Senators, { Francis M. Cockrell, d, term 1875-1899.
 { George G. Vest, d, 1879-1903.

Representatives.	Votes in 1896.					Votes in 1894.				
	Rep.	Dem.	Pop.	Pro.	Total.	Dem.	Rep.	Pop.	Pro.	Total.
1. Without rep, death.	19,324	24,044	1,578	165	45,111	15,357	15,786	4,270	228	35,641
2. Robt. N. Bodine, d,	19,367	25,862	1,212		46,441	18,039	16,178	2,761		36,978
3. A. M. Dockery, d,	18,634	23,952	2,164		44,750	16,230	15,890	4,053	258	36,431
4. Chas. F. Cochran, d,	17,683	a21,512		143	39,338	14,034	15,695	2,910	193	32,832
5. Wm. S. Cowherd, d,	21,306	25,966			47,272	16,536	15,798	2,541	111	34,986
6. D. A. Armond, r,	22,524	16,722	2,606	229	42,081	13,735	13,643	6,391		33,769
7. Jas. Cooney, d,	21,772	27,846	2,287	197	52,102	17,490	17,793	3,567	262	39,112
8. R. P. Bland, d,	19,754	24,605	1,467		45,826	16,815	16,865	3,528		37,208
9. Champ Clark, d,	17,475	19,970	252		37,697	14,950	15,082	595	b 686	31,313
10. R. Bartholdt, r, †	25,513	9,000			34,573	8,887	16,654	395	146	26,082
11. Charles F. Joy, r,	28,353	24,676			53,029	12,893	15,175	80	445	28,593
12. Chas. E. Pearce, r,	24,483	17,568			42,051	10,095	7,469		*1,094	18,658
13. Edward Robb, d,	19,062	22,310	1,583		42,955	16,021	16,849			32,870
14. W. D. Vandivea, d,	20,659	25,089	4,860		50,608	15,097	16,186	5,591		36,874
15. M. E. Benton, d,	17,900	25,502	2,010	328	45,740	14,036	16,630	5,741	387	36,794
Total by parties,	313,809	334,684	20,019	1,062	669,574	220,215	231,693	42,423	3,810	498,141

† Soc. Labor 296.

a Rep. and Dem.

b Soc. Labor, 686.

*Single tax.

MONTANA.

Senators, { Lee Mantle, r, term 1895-1899.
 { Thomas H. Carter, r, term 1895-1901.

Representative at large.	Votes in 1896.			Votes in 1894.				
	S Rep	G Rep	Total.	Rep.	Dem.	Peo.	Pro.	Total.
Charles S. Hartman, r,	33,932	9,429	43,361	23,140	10,369	15,240	529	49,268

POLITICS, NEW AND OLD.

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Congressional Election Returns.—Continued.

MISSISSIPPI.

Senators, { James J. George, d, term 1892-1899.
{ Edward C. Walthall, d, term 1892-1901.

Representatives.	Votes in 1896.					Votes in 1894.				
	Rep.	Dem.	Pop.	S Rep	Total.	Dem.	Rep.	Pop.	Pro.	Total.
1. John M. Allen, d,	335	7,321	742		8,398	2,977		844		3,821
2. Will V. Sullivan, d,	692	6,941	1,472		9,105	3,845	165	1,067	29	5,106
3. Thos. C. Catchings, r,	369	3,069		532	3,970	1,696		207	45	1,948
4. Andrew F. Fox, d,	347	8,143	3,086	161	11,737	5,213		3,751	42	9,006
5. John S. Williams, d,	142	10,475	2,218	212	13,047	5,646		2,953		8,699
6. Wm. F. Love, d,	1,055	6,739	2,683	231	10,708	3,889		2,127		6,016
7. Patrick Henry, d,	192	7,327	897		8,416	3,595		1,356	173	5,124
Total by parties,	3,132	50,015	11,098	1,130	65,381	26,961	165	12,305	289	39,720

Ind. 779.

NEBRASKA.

Senators, { William V. Allen, p, term 1883-1899.
{ John M. Thurston, r, term 1895-1901.

Representatives.	Votes in 1896.					Votes in 1894.				
	Rep.	Pop.	Fus.	Pro.	Total.	Rep.	Dem.	Fus.	Pro.	Total.
1. Jesse B. Strode, r,	17,356	*59	17,137	647	35,199	18,185		12,730	1,078	31,993
2. David H. Mercer, r,	14,861		13,286	202	28,349	12,946	8,165	‡3,962	393	25,466
3. Samuel Maxwell, f,	18,633	†254	23,487	521	42,895	16,531	8,019	‡11,738	851	37,139
4. Wm. L. Stark, f,	18,844		20,575	425	39,844	19,493	2,763	‡15,542	905	38,703
5. R. D. Sutherland, f,	15,621		18,332		33,953	16,410	875	15,450	651	33,386
6. Wm. L. Greene, p,	14,841	19,378		436	34,655	14,676		17,077	891	32,644
Total by parties,	100,156	19,691	92,817	2,231	214,895	98,241	19,822	76,499	4,769	199,331

* Nat. † G. Dem. ‡ Populists.

NEVADA.

Senators, { John P. Jones, r, term 1873-1903.
{ William M. Stewart, r, term 1887-1899.

Representative at large.	Votes in 1896.				Votes in 1894.				
	Rep.	Dem.	Pop.	Total.	Sil. D.	Rep.	Dem.	Pop.	Total.
1. Francis G. Newlands, d,	1,319	6,529	1,948	9,796	4,581	2,774	217	2,751	10,323

NEW HAMPSHIRE.

Senators, { William E. Chandler, r, term 1887-1901.
{ Jacob H. Gallinger, r, term 1891-1903.

Representatives.	Votes in 1896.					Votes in 1894.				
	Rep.	Dem.	Pro.	Scat.	Total.	Rep.	Dem.	Peo.	Pro.	Total.
*1. C. A. Sulloway, r,	25,661	13,928	614	326	40,761	22,730	16,507	401	733	40,372
†2. Frank G. Clarke, r,	26,699	13,877	544	314	41,612	23,416	17,122	272	766	41,576
Total by parties,	52,360	27,805	1,158	640	82,373	46,146	33,629	673	1,500	81,948

*121 N. Dem. 111 Peo. †178 Peo.

NEW JERSEY.

Senators, { James Smith, Jr., d, term 1893-1899.
{ William J. Sewall, r, term 1881-1901.

Representatives.	Votes in 1896.					Votes in 1894.				
	Rep.	Dem.	Pro.	Scat.	Total.	Rep.	Dem.	Pro.	Scat.	Total.
1. H. C. Londenslager, r,	33,659		1,516	150	35,325	24,462	12,082	1,731	1,835	40,110
2. J. J. Gardner, r,	31,418		1,036	1,191	33,645	22,641	12,900	1,278	630	37,449
3. Benj. F. Hewell, r,	24,308	16,087	511	1,134	42,040	18,403	14,427	791	677	34,298
4. Mahlon Pitney, r,	20,494	17,517	1,054		39,065	16,116	14,709	1,586	3,018	35,429
5. Jas. F. Stewart, r,	23,845	13,667	370	1,041	38,923	16,441	10,469	540		27,450
6. Richard W. Packer, r,	31,059	15,393	325	1,572	48,352	23,219	14,746	503	1,634	40,102
7. Thos. McEwan, Jr., r,	30,557	26,080	175	1,110	57,922	23,500	23,207	299	1,193	48,199
8. Chas. N. Fowler, r,	25,131	13,487	443	1,657	40,718	19,041	12,805	518	815	33,179
Total by parties,	220,471	102,231	5,433	7,855	335,990	163,823	115,345	7,246	9,802	296,216

† Fusion vote, 17,118. Fusion vote, 13,969.

THE GREAT PROBLEMS OF 1898.

Congressional Election Returns.—Continued.

NEW YORK.

Senators, { Edward Murphy, Jr., d, term 1893-1899.
 Thomas C. Platt, r, term 1897-1903.

Representatives.	Votes in 1896.					Votes in 1894.				
	Rep.	Dem.	N. Dem.	Scat.	Total.	Rep.	Dem.	Soc. Lab.	Scat.	Total.
1. Jos. M. Belford, r,	27,191	15,923	1,700	929	45,743	20,864	14,961	598		36,423
2. Denis M. Hurley, r,	18,268	14,901	1,561		34,730	14,507	13,194			27,701
3. Francis H. Wilson, r,	23,813	16,260	1,811		41,884	18,568	14,215			32,783
4. Israel F. Fischer, r,	25,810	18,381	1,036		45,227	19,802	17,514	649		37,965
5. Chas. G. Bennett, r,	22,605	14,186	805		37,596	19,372	11,825	1,176		32,373
6. James R. Howe, r,	15,314	14,287	354	941	20,896	14,427	12,525	682		27,634
7. J. H. G. Vehslage, d,		11,082	9,848		20,880	7,676	9,138	2,159	2,159	21,132
8. John M. Mitchell, r,	10,488	9,219		140	19,847	9,099	9,466			18,565
9. Thos. J. Bradley, d,		11,002	8,379	4,371	23,752	5,214	8,038	2,358	7,142	22,752
10. A. J. Cummings, d,	14,245	17,446	512	411	32,614	13,845	12,982		2,331	29,158
11. William Sulver, d,	10,435	12,195			22,630	10,524	11,208	1,448		23,180
12. G. B. McClellan, d,	11,038	12,815		478	24,331	9,592	10,933		2,042	22,567
13. R. C. Shannon, r,	15,513	14,067	1,029	685	31,294	13,555	13,089	464	1,943	29,051
14. Lemuel E. Quigg, r,	27,865	18,553	2,414	1,235	50,067	24,332	18,355	884		43,571
15. Philip B. Low, r,	29,602	22,520		1,299	53,421	21,562	17,028	1,123	4,827	44,540
16. William L. Ward, d,	30,709	23,456	1,697	461	56,323	24,853	19,274	765	624	45,536
17. Benj. B. Odell, r,	22,622	15,500	445		38,567	19,327	13,520		781	33,628
18. J. H. Ketcham, r,	25,531	15,956	462		51,949	22,169	16,640			38,809
19. A. V. S. Cochrane, r,	25,509	17,735	389	472	44,105	20,954	17,514	214	595	39,277
20. G. N. Southwick, r,	22,342	17,637	401	432	40,812	19,199	17,549			36,748
21. David F. Wilber, r,	28,567	22,267		464	51,298	24,442	20,395		1,254	46,091
22. L. N. Littaner, r,	32,138		676	1,640	34,454	22,383	12,785		1,223	36,391
23. W. T. Foote, Jr., r,	30,475		494		30,969	25,526	11,143			36,669
24. C. A. Chickering, r,	27,242	16,248		870	44,360	23,320	13,473		1,255	38,048
25. Jas. S. Sherman, r,	26,996	16,512		852	44,360	22,371	16,130		993	39,494
26. George W. Ray, r,	34,686	20,383	513	1,512	57,094					
27. James J. Belden, r,						24,647	16,307	655	1,211	42,820
28. Sereno E. Payne, r,	33,628	19,822	468		53,918	29,528	15,926		1,697	47,151
29. Chas. W. Gillett, r,	27,192	17,994	369		45,555	22,051	16,510		1,745	40,306
30. J. W. Wadsworth, r,	28,478	19,066	469	1,269	49,282	24,541	13,950		1,648	40,139
31. H. C. Brewster, r,	25,399	17,109	386	1,050	43,944	21,488	15,530	413	588	38,019
32. R. B. Mahany, r,	18,623	14,765	313	336	34,037	15,548	13,893	306	187	29,934
33. De A. S. Alexander, r,	27,573	14,636	931	629	43,769	23,595	11,095	293	532	35,515
34. W. B. Hooker, r,	30,696		422	4,577	35,695	25,964	10,674		2,161	38,799
Total by parties,	750,593	491,873	37,884	25,053	1,305,403	634,845	466,799	14,187	36,938	1,152,769

NORTH CAROLINA.

Senators, { Peter C. Pritchard, r, term 1897-1903.
 Marion Butler, p, term 1895-1901.

Representatives.	Votes in 1896.				Votes in 1894.				
	Rep.	Dem.	Pop.	Total.	Rep.	Dem.	Peo.	Pro.	Total.
1. Harry Skinner, p,		14,831	20,875	35,706		13,446	16,510		29,956
2. George H. White, p,	19,338	15,368	2,738	37,444	9,413	14,721	5,314		29,448
3. John E. Fowler, p,	12,534		17,989	30,523	6,966	10,699	9,705		27,370
4. William F. Strowd, p,		16,405	20,947	37,352		14,335	18,667		33,002
5. Wm. W. Ketchen, d,	18,639	19,082	507	38,228	16,934	14,046	2,104	213	33,297
6. Charles H. Martin, p,						13,996	13,552		27,548
7. Alonzo C. Shuford, p,		14,291	17,166	31,457	15,383	13,125			28,508
8. Romulus Z. Linney, r,	19,419	18,006		37,425	18,775	15,491		109	34,375
9. Richmond Pearson, r,	20,495	19,189	28	39,712	16,869	16,734			33,603
Total by parties,	90,425	117,172	80,250	287,847	84,340	126,593	65,852	322	277,107

NORTH DAKOTA.

Senators, { Henry C. Hansbrough, r, term 1891-1903.
 William N. Roach, d, term 1893-1899.

Representative.	Votes in 1896.				Votes in 1894.				
	Rep.	Fus.	Pro.	Total.	Rep.	Dem.	Peo.	Pro.	Total.
Martin N. Johnson, r,	25,233	21,172	349	46,754	21,615	1,283	15,660	439	38,997

There's many a slip 'twixt cup and lip.

Congressional Election Returns.—Continued.

OHIO.

Senators, { Joseph B. Foraker, r, term 1896-1903.
 Marcus A. Hanna, r, term 1897-1898.

Representatives.	Votes in 1896.					Votes in 1894.				
	Rep.	Dem.	Pro.	Peo.	Total.	Rep.	Dem.	Pro.	Peo.	Total.
1. William B. Shattue, r,	27,093	17,466			44,559	19,315	10,378	279	1,679	31,651
2. Jacob H. Bromwell, r,	30,075	20,878			50,953	22,221	10,667	232	2,456	35,576
3. John L. Brenner, d,	27,333	27,434	254		55,021	22,327	22,529	700	1,367	46,923
4. George A. Marshall, d,	16,671	25,688	484		42,843	13,910	15,388	1,002	2,323	32,623
5. David Meekison, d,	18,478	24,383	642		43,503	16,546	14,899	16	2,015	33,476
6. Seth W. Brown, r,	25,360	21,358		336	47,054	20,283	15,505	1,419	1,193	38,400
7. Walter L. Weaver, r,*	23,745		21,171	334	45,250	18,021	11,731	1,459	1,603	32,814
8. Arch. Sybrand, r,*	26,211		22,519		48,730	21,730	11,740	1,654	2,045	37,169
9. James H. Southard, r,	29,603	25,698			55,301	20,715	14,109	1,130	1,834	37,788
10. Lucien J. Fenton, r,	24,809	18,029			42,838	19,768	9,465	878	1,496	31,607
11. Chas. H. Grosvenor, r,	24,333	19,799		74	44,206	20,713	11,601	1,000	3,115	36,429
12. John J. Lentz, d,	23,712	23,818			47,530	18,953	17,362	35	2,015	38,365
13. James A. Norton, d,	23,506	28,878	458	249	53,091	19,131	18,453	1,022	2,983	41,589
14. Winfield S. Kerr, r,	28,550	24,574			53,224	21,302	14,262	1,521	1,930	39,015
15. H. C. Van Voorhis, r,	22,660	19,837	205	354	42,956	19,291	12,021	1,234	1,508	34,054
16. Lorenzo Danford, r,	21,690	18,632			40,322	17,481	10,300	1,495	1,977	31,253
17. John A. McDowell, d,	21,169	26,109		461	47,739	19,061	17,403	343	2,268	39,075
18. Robert W. Taylor, r,	29,814	24,770		476	55,060	20,803	11,051	1,679	8,912	42,445
19. Stephen A. Northug, r,	31,789	20,632	308		52,729	22,361	7,164	1,530	4,492	35,547
20. Clifton B. Beach, r,	24,531	21,834		253	46,618	17,327	8,351	931	2,456	29,065
21. Theodore E. Burton, r,	25,527	20,025	226	177	45,955	17,968	13,749		1,805	33,522
Total by parties,	526,639	429,842	46,267	2,714	1,005,482	409,227	278,128	19,559	51,472	758,586

* Vote for people's party, 1896, includes dem.

PENNSYLVANIA.

Senators, { Matthew S. Quay, r, term 1887-1899.
 Boies Penrose, r, term 1897-1903.

Representatives.	Votes in 1896.					Votes in 1894.				
	Rep.	Dem.	Pro.	Peo.	Total.	Rep.	Dem.	Pro.	Peo.	Total.
S. A. Davenport,	708,633	413,800	18,091							
* G. A. Grow, r,	711,246	418,210	18,336	7,482	1,150,619					
1. H. H. Bingham, r,	32,466	13,962	150		46,578	26,956	10,995	171		38,123
2. R. Adams, Jr., r,	22,205	6,096	148		28,449	17,559	5,488	143		23,190
3. Wm. McAleer, d,	9,556	11,965	2,236		23,757	13,443	6,980			20,423
4. James R. Young, r,	59,147	16,536	2,538		76,221	42,461	16,056	624		59,141
5. A. C. Harmer, r,	47,953	14,484	387		62,824	38,986	12,530	316	272	52,104
6. Thos. C. Butler, r,	15,016	9,288			24,304	20,717	9,830	1,513		32,060
7. I. P. Wanger, r,	26,725	16,740	531		43,996	22,913	18,087	629	149	41,778
8. W. S. Kirkpatrick, r	17,072	16,743			33,815	14,565	14,762	479	218	30,024
9. D. Ermentrout, d,	23,022	16,123			49,145	19,325	21,273		518	41,116
10. Marriott Brosius, r,	24,122	8,252	525		32,899	19,266	7,181	723		27,170
11. Wm. Connell, r,	18,598	10,741	796		30,135	14,104	12,027	1,009	487	27,627
12. M. B. Williams, r,	20,920	17,976		234	39,130	18,114	12,644	1,506		32,264
13. C. N. Brumm, r,	16,613	14,512	239		31,364	13,947	11,718			25,665
14. M. E. Olmstead, r,	25,014	462	1,101	1,946	28,523	19,139	9,177	1,176	354	29,846
15. J. H. Coddling, r,	20,210	11,444	1,150		32,804	15,651	7,501	1,085	123	24,360
16. H. B. Packer, r,	21,543	15,152	1,654		38,349	16,791	11,687	1,676	1,049	31,203
17. M. H. Kulp, r,	15,195	14,073	1,052		30,320	12,677	11,783	1,038	242	25,740
18. T. H. Mahon, r,	22,455	14,222			36,677	19,388	11,778			31,166
19. G. J. Benner, d,	21,382	22,160	529		44,071	21,138	18,754	690		40,582
20. J. D. Hicks, r,	19,974	17,297	781	104	38,156	23,969	12,592	849	680	38,090
21. E. E. Robbins, r,	32,149	19,464	1,063	1,968	54,644	24,754	14,007	968	1,902	41,631
22. John Dalzell, r,	28,860	12,788		166	41,814	29,136	7,430	1,291		37,857
23. Wm. A. Stone, r,	21,379	6,191		139	27,709	13,731	3,420		541	17,692
24. E. F. Acheson, r,	26,554	26,538	903		63,995	27,538	17,304	995	2,321	48,158
25. Without rep, death	26,529	17,050	1,034		44,613	22,156	10,435	1,475	1,919	35,985
26. J. C. Sturtevant, r,	18,840	118,114	361		37,315	15,729	13,265	740		29,734
27. Chas. W. Stone, r,	15,777	10,058	1,131		26,966	11,717	4,845	1,724	906	19,192
28. W. C. Arnold, r,	19,295	18,090	1,035		38,420	16,994	15,197	1,429		33,620
Total by parties,	2,198,440	1,234,121	53,526	12,039	2,257,612	572,865	328,746	22,249	11,681	935,541

* Rep. at large. † Dem. pop. ‡ N. Rep. α Scattering.

THE GREAT PROBLEMS OF 1893.

Congressional Election Returns.—Continued.

OREGON.

Senator, { George W. McBride, r, term 1895-1901.

Representatives.	Votes in 1896.					Votes in 1894.				
	Rep.	Dem.	Pop.	Scat.	Total.	Rep.	Dem.	Peo.	Pro.	Total.
Thomas H. Tongue, r,	19,355	7,914	19,292	1,356	47,917	22,264	10,790	12,620	1,080	46,754
William R. Ellis, r,	12,617	7,099	12,239	7,874	39,829	18,875	9,013	10,749	775	39,412
Total by parties,	31,972	15,013	31,531	9,230	87,746	41,139	19,803	23,369	1,855	86,166

RHODE ISLAND.

Senators, { Nelson W. Aldrich, r, term 1881-1899.
George P. Wetmore, r, term 1894-1901.

Representatives.	Votes in 1896.					Votes in 1894.					
	Rep.	Dem.	Pro.	Soc. L	Tot.	Peo.	Rep.	Dem.	Soc. L	Pro.	Total.
1. Melville Bull, r,	17,378	8,542	684	664	27,268	194	11,355	7,225	618	426	19,818
2. Adin B. Capron, r,	16,612	8,088	1,207	254	26,161	83	11,306	9,394	158	720	21,661
Total by parties,	33,990	16,630	1,891	918	53,428	277	22,661	16,619	776	1,146	41,479

SOUTH DAKOTA.

Senators, { Richard F. Pettigrew, Sr., term 1895-1901.
James H. Kyle, Ind., term 1897-1903.

Representatives at large.	Votes in 1896.				Votes in 1894.				
	Pop.	Rep.	Pro.	Total.	Pop.	Rep.	Dem.	Pro.	Total.
Freeman Knowles p,	41,233	40,575		81,808	27,383	40,383	8,102	872	76,740
John E. Kelley, pop-dem,	41,125	40,043	500	84,668	27,354	40,626	8,041	823	76,844
Total by parties,	82,358	80,618	500	166,476	54,687	81,009	16,143	1,696	153,584

SOUTH CAROLINA.

Senators, { Benjamin R. Tillman, d, term 1891-1901.
Joseph H. Earle, d, term 1897-1903.

Representatives.	Votes in 1896.				Votes in 1894.				
	Rep.	Dem.	N. Rep.	Total.	Rep.	Dem.	Peo.	Ind. D.	Total.
1. William Elliott, d,	2,478	4,652	173	7,303	3,913	5,650			9,563
2. W. Jasper Talbert, d,	635	7,999		8,634		5,942	19		5,961
3. Asbury C. Latimer, d,	659	9,745	192	10,596	985	5,778	342		7,105
4. Stanyame Wilson, d,	507	11,230	443	12,180	2,771	8,425			11,196
5. Thomas J. Strait, d,	833	8,000		8,833	1,545	1,163		6,141	8,849
6. John S. McLaurin, d,	870	9,200		10,070	2,452	8,171		4	10,627
7. J. William Stokes, d,	1,342	8,065		9,407	2,656	7,358			10,014
Total by parties,	7,324	58,891	808	67,023	14,322	42,487	361	6,145	63,315

TENNESSEE.

Senators, { Isham G. Harris, d, term 1877-1901.
William B. Bate, d, term 1887-1893.

Representatives.	Votes in 1896.					Votes in 1894.				
	Rep.	Dem.	Pop.	Pro.	Total.	Rep.	Dem.	Pro.	Peo.	Total.
1. Walter P. Brownlow, r,	25,075	13,916	*930	232	40,153	18,017	8,542	2,662		29,221
2. Henry R. Gibson, r,	28,112	9,448		234	37,794	13,191		414	638	14,243
3. John A. Moon, d,	17,716	19,498	133	227	37,574	17,019	13,947	1,669		32,635
4. Benton McMillin, d,	12,269	18,070			30,339	10,082	11,965			22,047
5. James D. Richardson, d,	9,000	16,089	2,384		27,473		11,440		9,543	20,983
6. John W. Gaines, d,	12,102	17,537	661		30,300	4,798	11,234		4,782	20,814
7. Nicholas N. Cox, d,	10,744	15,434	1,795		27,973	6,366	9,098		1,844	17,308
8. Thetus W. Sims, d,	13,619	16,568	1,130		31,317	13,064	12,243	6		25,313
9. Rice A. Pierce, d,		19,138	10,714		29,852		10,634		7,983	18,617
10. E. W. Carmack, d,	10,556	11,024			21,580	1,955	6,634		1,454	10,043
Total by parties,	139,193	156,722	17,747	693	314,355	84,492	95,737	4,751	26,244	211,224

* Bolting rep. Second district, Ind. rep., 16,215. Fifth district, Ind. rep., 320.

Congressional Election Returns.—Continued.

TEXAS.

Senators, { Roger Q. Mills, d, term 1892-1899.
Horace Chilton, d, term 1895-1901.

Representatives.	Votes in 1896.					Votes in 1894.				
	Rep.	Dem.	Pop.	G. D.	Total.	Rep.	Dem.	Peo.	Ind.	Total.
1. Thomas H. Ball, d,	153	19,193	15,189		34,503	2,164	14,920	10,097		27,181
2. Sam. B. Cooper, d,	5,188	25,198	12,822		43,208		23,273	16,223		39,496
3. R. DeGraffenried, d,		21,208	16,351		37,559		15,462	12,411		27,873
4. J. W. Crawford, d,		21,187	13,703	3,570	38,460	1,726	15,873	14,515		32,114
5. Jos. W. Bailey, d,	9,050	28,416	4,747		42,213	1,517	19,722	13,540		34,779
6. Robt. E. Burke, d,		33,144	*25,230		58,374	968	19,965	19,621		40,554
7. Robt. L. Henry, d,	11,632	26,151	9,634		47,417		18,822	17,092		35,914
8. S. W. T. Lanhan, d,		20,935	17,510	747	39,192		16,480	16,104		32,584
9. Jos. W. Sayers, d,	11,495	20,681	6,787	962	39,925		18,460	16,591		35,051
10. R. B. Hawley, r,	17,936	15,715	5,476		39,127	10,874	12,177	7,847		30,898
11. Rudolph Kleberg, d	15,439	19,159	4,254	210	39,062		17,946		16,089	34,035
12. Jas. S. Slayden, d,	13,588	14,744	3,210	a210	31,542	11,958	11,045	4,213		27,216
13. John H. Stephens, d,	14,219	22,989	14,219	a354	37,562	1,566	13,687	13,321		28,574
Total by parties,	98,700	288,688	249,132	5,843	528,144	30,773	217,832	161,575	16,089	440,488

* Pop. rep. a Scattering.

UTAH.

Senators, { Frank J. Cannon, r, term 1896-1899.
Joseph L. Rawlins, d, term 1897-1903.

Representative at large.	Votes in 1896.			
	Rep.	Dem.	Pop.	Total.
1. Wm. H. King, d,	27,813	47,356	2,279	77,448

VERMONT.

Senators, { Justin S. Morrill, r, term 1867-1903.
Redfield Proctor, r, term 1892-1899.

Representatives.	Votes in 1896.					Votes in 1894.		
	Rep.	Dem.	Peo.	Scat.	Total.	Rep.	Dem.	Total.
1. H. Henry Powers, r,	26,145	7,693	363	17	34,218	21,546	6,987	28,533
2. William W. Grout, r,	26,319	6,202	209	7	32,737	20,337	6,658	26,995
Total by parties,	52,464	13,895	572	24	66,955	41,883	13,645	55,528

VIRGINIA.

Senators, { John W. Daniel, d, term 1887-1899.
Thomas S. Martin, d, term 1895-1901.

Representatives.	Votes in 1896.					Votes in 1894.				
	Rep.	Dem.	Pro.	N. Dem.	Tot.	Rep.	Dem.	Peo.	Pro.	Total.
1. *William A. Jones, d,	10,752	15,525	216	*82	26,575	6,944	11,589	461	291	19,285
2. William A. Young, d,	13,390	15,789	†240	1,895	31,314	8,868	12,375	751		21,994
3. John Lamb, d,	12,716	16,634	85		29,435	4,653	11,745	1,788	231	18,417
4. Sydney P. Epes, d,	10,273	12,894	†491		23,658	7,909	8,773	1,116		17,798
5. Claude A. Swanson, d,	13,782	14,333			28,115	8,417	10,750	1,121	249	20,537
6. Peter J. Otey, d,	748	17,187		11,702	29,637	8,238	10,602	3,550		22,440
7. James Hay, d,	13,250	17,447	195	a 358	31,250	9,500	11,041	247	395	21,183
8. John F. Rixey, d,	13,114	17,030	140		30,284	8,450	10,801	628		19,879
9. James A. Walker, r,	16,077	14,909			30,986	14,287	13,331	271		27,889
10. Jacob Yost, r,	16,194	16,047	†102		32,343	11,530	12,422	396	285	24,633
Total by parties,	120,296	157,795	1,469	14,037	293,597	88,846	113,429	10,329	1,451	214,055

* Soc. labor. † Ind. a Bolting Dem. b Scattering.

A cat may look at a king.

THE GREAT PROBLEMS OF 1898.

Congressional Election Returns,—Continued.

WASHINGTON.

Senators, { John L. Wilson, r, term 1895-1899.
George Turner, r, term 1897-1903.

Representatives.	Votes in 1896.				Votes in 1894.				
	Rep.	Dem.	Fus.	Total.	Rep.	Dem.	Peo.	Pro.	Total.
1. Jas. H. Lewis, d,	38,202	52,566		90,768	34,812	14,160	25,140	209	74,321
2. Wm. C. Jones, f,	27,939		51,158	79,097	33,930	14,082	24,607	202	72,821
Tot. by parties,	66,141	52,566	51,158	169,865	68,742	28,242	49,747	411	147,142

WEST VIRGINIA.

Senators, { Charles J. Faulkner, d, term 1887-1899.
Stephen B. Elkins, r, term 1894-1901.

Representatives.	Votes in 1896.					Votes in 1894.		
	Rep.	Dem.	Fus.	Pop.	Total.	Rep.	Dem.	Total.
1. Blackburn Dovener, r,	25,231	21,472			46,703	21,807	17,399	39,206
2. Alston G. Dayton, r,	25,500		23,249		48,749	23,343	21,392	44,735
3. Charles P. Dorr, r,	29,660	26,029			55,689	23,554	19,536	43,090
4. Warren Miller, r,	24,954	23,774		21	48,749	20,701	17,819	38,520
Total by parties,	105,345	71,275	23,249	21	199,890	89,405	76,146	165,551

WISCONSIN.

Senators, { John L. Mitchell, d, term 1893-1899.
John C. Spooner, r, term 1897-1903.

Representatives.	Votes in 1896.					Votes in 1894.				
	Rep.	Dem.	Pro.	Fus.	Total.	Rep.	Dem.	Peo.	Pro.	Total.
1. Henry A. Cooper, r,	28,235	14,723	1,084		44,042	21,972	12,334	2,828	1,615	38,749
2. Edward Sauerhering, r	23,957	17,480	1,025		42,462	18,197	17,932	455	1,433	38,017
3. Joseph W. Babcock, r,	26,691			15,168	41,859	22,364		14,608	1,374	38,346
4. Thobold Otzen, r,	25,896		*433	21,429	47,758	17,719	12,214	7,092		37,025
5. Samuel Barney, r,	26,613	16,493	*557		43,663	18,681	13,057	3,794		35,532
6. James H. Davidson, r,	26,649	18,944	626		46,219	21,718	14,919	1,341	977	38,955
7. Michael Griffin, r,	24,073	12,047	791		36,911	17,489	9,996	1,626	1,250	30,361
8. Edward S. Minor, r,	26,471		580	16,845	43,896	19,902	15,522	330	949	36,703
9. Alexander Stewart, r,	30,438	17,716			48,154	22,741	14,910	2,187	785	40,623
10. John J. Jenkins, r,	28,149	14,823	21		42,993	19,836	9,054	3,855	1,531	34,276
Total by parties,	267,172	112,226	5,117	53,442	437,957	200,619	119,938	38,116	9,914	368,587

* Soc. labor. † Fusion.

WYOMING.

Senators, { Francis E. Warren, r, term 1890-1901.
Clarence D. Clark, f, term 1895-1899.

Representative.	Votes in 1896.				Votes in 1894.			
	Rep.	Dem.	Pop.	Total.	Rep.	Dem.	Peo.	Total.
1. * John E. Osborne, d,	10,044	10,310	628	20,982	10,068	6,152	2,906	19,126

* At large.

ARIZONA.

Representative.	Votes in 1896.			
	Rep.	Dem.	Pop.	Total.
1. Marcus A. Smith, d,	4,090	6,065	3,895	14,050

NEW MEXICO.

Representative.	Votes in 1896.			
	Rep.	Dem.	G. Dem.	Total.
1. H. B. Ferguson, d,	7,017	18,947	66	36,030

OKLAHOMA.

Representative.	Votes in 1896.		
	Rep.	Fus.	Total.
1. James Y. Callahan, r,	26,267	27,435	53,702

The Congress Districts of Each State.

As represented in the present or 55th Congress. The names of the present representatives in congress and the vote for congressman in '96 and '94, are given in detail in preceding table.

ALABAMA.

1. Pop. 151,757: Choctaw, Clarke, War-
engo, Mobile, Monroe, Washington.
2. Pop. 188,214: Baldwin, Butler, Cone-
cuh, Covington, Crenshaw, Escambia,
Montgomery, Pike and Wilcox.
3. Pop. 179,680: Barbour, Bullock, Cof-
fee, Dale, Geneva, Henry, Lee and Russell.
4. Pop. 161,184: Calhoun, Chilton, Cle-
burne, Dallas, Shelby and Talladega.
5. Pop. 185,720: Autauga, Chambers,
Clay, Coosa, Elmore, Lowndes, Macon,
Randolph and Tallapoosa.
6. Pop. 158,838: Fayette, Greene, Lamar,
Marion, Pickens, Sumter, Tuscaloosa and
Walker.
7. Pop. 130,451: Cherokee, Cullman,
DeKalb, Etowah, Franklin, Marshall, St.
Clair and Winston.
8. Pop. 176,088: Colbert, Jackson, Lau-
derdale, Lawrence, Limestone, Madison
and Morgan.
9. Pop. 181,085: Bibb, Blount, Hale,
Jefferson and Perry.

ARKANSAS.

1. Pop. 220,261: Clay, Craighead, Crit-
tenden, Cross, Greene, Jackson, Lawrence,
Lee, Mississippi, Phillips, Poinsett, Ran-
dolph, Sharp, St. Francis and Woodruff.
2. Pop. 206,187: Bradley, Cleveland,
Dallas, Drew, Garland, Grant, Hot Spring,
Jefferson, Lincoln, Montgomery, Polk,
Saline, Scott and Sebastian.
3. Pop. 190,805: Ashley, Calhoun, Chi-
cot, Clark, Columbia, Desha, Hempstead,
Howard, Lafayette, Little River, Miller,
Nevada, Ouachita, Pike, Sevier and Union.
4. Pop. 147,806: Conway, Franklin,
Johnson, Logan, Perry, Pope, Pulaski and
Yell.
5. Pop. 197,942: Benton, Boone, Carroll,
Crawford, Faulkner, Madison, Newton,
Searcy, Van Buren and Washington.
6. Pop. 160,181: Arkansas, Baxter,
Cleburne, Fulton, Independence, Izard,
Lonoke, Marion, Monroe, Prairie, Stone
and White.

CALIFORNIA.

1. Pop. 163,037: Del Norte, Humboldt,
Lassen, Marin, Mendocino, Modoc, Napa,
Plumas, Shasta, Sierra, Siskiyou, Sonoma,
Tehama and Trinity.
2. Pop. 155,998: Alpine, Amador, Butte,
Calaveras, Eldorado, Inyo, Mariposa,
Mono, Nevada, Placer, Sacramento, San
Joaquin, Sutter, Tuolumne and Yuba.
3. Pop. 162,750: Alameda, Colusa, Con-
tra Costa, Lake, Solano and Yolo.
4. Pop. 147,642: City of San Francisco.
5. Pop. 228,717: San Francisco, San
Mateo and Santa Clara.

6. Pop. 165,018: Los Angeles, Monte-
rey, San Luis, Obispo, Santa Barbara,
Santa Cruz and Ventura.

7. Pop. 161,988: Fresno, Kern, Merced,
Orange, San Benito, San Bernardino, San
Diego, Stanislaus and Tulare.

COLORADO.

1. Pop. 204,659: Arapahoe, Boulder,
Jefferson, Lake, Larimer, Logan, Morgan,
Park, Phillips, Sedgwick, Washington,
Weld and Yuma.
2. Pop. 207,539: Archuleta, Baca, Bent,
Chaffee, Cheyenne, Clear Creek, Conejos,
Costilla, Custer, Delta, Dolores, Douglas,
Eagle, Elbert, El Paso, Fremont, Garfield,
Gilpin, Grand, Gunnison, Hinsdale, Huer-
fano, Kiowa, Kit Carson, La Plata, Las
Animas, Lincoln, Mesa, Mineral, Monte-
zuma, Montrose, Otero, Ouray, Pitkin,
Prowers, Pueblo, Rio Blanco, Rio Grande,
Routt, Saguache, San Juan, San Miguel
and Summit.

CONNECTICUT.

1. Pop. 172,261: Hartford and Tolland,
including cities of Hartford, New Britain
and Rockville.
2. Pop. 248,582: Middlesex and New
Haven, including cities New Haven, Meri-
den, Waterbury, Ansonia, Derby and Mid-
dletown.
3. Pop. 121,792: New London and Wind-
ham, including cities of New London and
Norwich.
4. Pop. 203,623: Fairfield and Litchfield.

DELAWARE.

Pop. 168,493: State at large.

FLORIDA.

1. Pop. 188,630: Calhoun, Citrus, De
Soto, Escambia, Franklin, Gadsden, Her-
nando, Hillsboro, Holmes, Jackson, Jef-
ferson, Lafayette, Lee, Leon, Levy, Lib-
erty, Manatee, Monroe, Pasco, Polk, Santa
Rosa, Taylor, Wakulla, Walton and Wash-
ington.
2. Pop. 202,792: Alachua, Baker, Brad-
ford, Brevard, Clay, Columbia, Dade, Du-
val, Hamilton, Lake, Madison, Marion,
Nassau, Orange, Osceola, Putnam, St. Johns,
Sumter, Suwannee and Volusia.

GEORGIA.

1. Pop. 169,809: Burke, Bullock, Bryan,
Chatham, Emanuel, Effingham, Liberty,
McIntosh, Screven and Tattnall.
2. Pop. 180,300: Baker, Berrien, Cal-
houn, Clay, Colquitt, Decatur, Dougherty,
Early, Miller, Mitchell, Quitman, Ran-
dolph, Terrell, Thomas and Worth.
3. Pop. 159,658: Crawford, Dooly, Hous-
ton, Lee, Macon, Pulaski, Schley, Stewart,
Sumter, Twiggs, Taylor, Webster and
Wilcox.

The Congress Districts of Each State.—Continued.

4. Pop. 166,121: Carroll, Chattahoochee, Coweta, Harris, Heard, Marion, Meriwether, Muscogee, Talbot and Troup.

5. Pop. 165,638: Campbell, Clayton, Dekalb, Douglas, Fulton, Newton, Rockdale and Walton.

6. Pop. 165,942: Baldwin, Bibb, Butts, Fayette, Henry, Jones, Monroe, Pike, Spalding and Upson.

7. Pop. 179,259: Barton, Catoosa, Chattooga, Cobb, Dale, Floyd, Gordon, Haralson, Murray, Paulding, Polk, Walker and Whitfield.

8. Pop. 170,801: Clarke, Elbert, Franklin, Greene, Hart, Jasper, Madison, Morgan, Oglethorpe, Oconee, Putnam and Wilkes.

9. Pop. 172,061: Banks, Cherokee, Dawson, Fannin, Forsyth, Gilmer, Gwinnett, Habersham, Hall, Jackson, Lumpkin, Milton, Pickens, Rabun, Towns, Union and White.

10. Pop. 160,758: Columbia, Glascock, Jefferson, Hancock, Lincoln, McDuffie, Richmond, Taliaferro, Warren, Washington and Wilkinson.

11. Pop. 155,948: Appling, Brooks, Camden, Charlton, Clinch, Coffee, Echols, Dodge, Glynn, Irwin, Johnson, Laurens, Lowndes, Montgomery, Pierce, Telfair, Ware and Wayne.

IDAHO.

Pop. 84,385: State at large.

ILLINOIS.

1. Pop. 163,949: Part of Cook county, embracing the Third, Thirty-first, Thirty-second, Thirty-third and Thirty-fourth wards and part of the Fourth ward of the city of Chicago, with the townships of Bloom, Bremen, Calumet, Orland, Rich, Thornton and Worth.

2. Pop. 175,484: Part of Cook county, the Tenth, Twenty-eighth, Twenty-ninth, and Thirtieth wards of the city of Chicago, and the towns of Cicero, Elk Grove, Hanover, Lamont, Leyden, Lyons, Maine, Norwood Park, Palos, Proviso, Riverside and Schaumburg.

3. Pop. 168,885: Part of Cook county, that part of the Fourth ward west of the center line of Wentworth avenue and all of the First, Second, Fifth, Sixth and Seventh wards of the city of Chicago.

4. Pop. 170,232: Part of Cook county, the Eighth, Ninth, Twelfth, and Nineteenth wards of the city of Chicago.

5. Pop. 175,253: Part of Cook county, the Eleventh, Thirteenth, Sixteenth, Seventeenth and Eighteenth wards of the city of Chicago.

6. Pop. 172,811: Part of Cook county, the Twentieth, Twenty-first, Twenty-second, Twenty-third and Twenty-fourth wards, that part of the Twenty-fifth ward south of the center line of Diversity street and west of the center line of Halstead

street, and that part of the Twenty-sixth ward south of the center line of Belmont avenue, of the city of Chicago.

7. Pop. 172,602: Part of Cook county, the Fourteenth, Fifteenth and Twenty-seventh wards and part of the Twenty-fifth and Twenty-sixth wards of the city of Chicago, and the towns of Barrington, Evanstown, New Trier, Niles, Northfield, Palatine and Wheeling of Cook county, and all of the county of Lake.

8. Pop. 173,922: Dekalb, Dupage, Grundy, Kane, Kendall and McHenry.

9. Pop. 181,797: Boone, Carroll, Jo Daviess, Lee, Ogle, Stephenson and Winnebago.

10. Pop. 173,388: Henry, Knox, Mercer, Rock Island, Stark and Whiteside.

11. Pop. 175,696: Bureau, Lasalle, Livingston and Woodford.

12. Pop. 175,811: Iroquois, Kankakee, Vermilion and Will.

13. Pop. 184,027: Champaign, Dewitt, Douglass, Ford, McLean and Piatt.

14. Pop. 177,494: Fulton, Marshall, Mason, Peoria, Putnam and Tazewell.

15. Pop. 180,383: Adams, Brown, Hancock, Henderson, McDonough, Schuyler and Warren.

16. Pop. 176,536: Calhoun, Cass, Greene, Jersey, Macoupin, Morgan, Pike and Scott.

17. Pop. 168,418: Christian, Logan, Macon, Menard and Sangamon.

18. Pop. 165,127: Bond, Fayette, Madison, Montgomery, Moultrie and Shelby.

19. Pop. 178,763: Clark, Coles, Crawford, Cumberland, Edgar, Effingham, Jasper, Lawrence and Richland.

20. Pop. 166,590: Clay, Edwards, Franklin, Gallatin, Hamilton, Hardin, Jefferson, Wabash, Wayne and White.

21. Pop. 183,111: Clinton, Marion, Monroe, Randolph, Perry, St. Clair and Washington.

22. Pop. 159,186: Alexander, Jackson, Johnson, Massac, Pope, Pulaski, Saline, Union and Williamson.

INDIANA.

1. Pop. 185,263: Gibson, Perry, Pike, Posey, Spencer, Vanderburg and Warrick.

2. Pop. 161,387: Crawford, Daviess, Dubois, Green, Knox, Lawrence, Martin and Orange.

3. Pop. 170,209: Clark, Floyd, Harrison, Jackson, Jefferson, Jennings, Scott and Washington.

4. Pop. 142,314: Dearborn, Decatur, Franklin, Ohio, Ripley, Rush, Shelby and Switzerland.

5. Pop. 148,925: Bartholomew, Brown, Hendricks, Johnson, Monroe, Morgan, Owen and Putnam.

6. Pop. 139,359: Delaware, Fayette, Henry, Randolph, Union and Wayne.

7. Pop. 195,472: Hancock, Madison and Marion.

Set a thief to catch a thief.

The Congress Districts of Each State.—Continued.

8. Pop. 183,641: Clay, Fountain, Montgomery, Parke, Sullivan, Vermilion and Vigo.

9. Pop. 182,344: Benton, Boone, Clinton, Hamilton, Howard, Tippecanoe, Tipton and Warren.

10. Pop. 156,749: Carroll, Cass, Fulton, Jasper, Lake, Newton, Porter, Pulaski and White.

11. Pop. 187,720: Adams, Blackford, Grant, Huntington, Jay, Miami, Wabash and Wells.

12. Pop. 162,216: Allen, Dekalb, Lagrange, Noble, Steuben and Whitley.

13. Pop. 175,905: Elkhart, Kosciusko, Laporte, Marshall, St. Joseph and Starke.

IOWA.

1. Pop. 153,712: Des Moines, Henry, Jefferson, Lee, Louisa, Van Buren, and Washington.

2. Pop. 172,990: Clinton, Iowa, Jackson, Johnson, Muscatine and Scott.

3. Pop. 184,437: Blackhawk, Bremer, Buchanan, Butler, Delaware, Dubuque, Franklin, Hardin and Wright.

4. Pop. 169,344: Allamakee, Cerro Gordo, Chickasaw, Clayton, Fayette, Floyd, Howard, Mitchell, Winneshiek and Worth.

5. Pop. 168,175: Benton, Cedar, Grundy, Jones, Linn, Marshall and Tama.

6. Pop. 155,354: Davis, Jasper, Keokuk, Mahaska, Monroe, Poweshiek and Wapello.

7. Pop. 161,320: Dallas, Madison, Marion, Polk, Story and Warren.

8. Pop. 173,484: Adams, Appanoose, Clarke, Decatur, Fremont, Lucas, Page, Ringgold, Taylor, Union and Wayne.

9. Pop. 180,764: Adair, Audubon, Cass, Guthrie, Harrison, Mills, Montgomery, Pottawattamie and Shelby.

10. Pop. 188,346: Boone, Calhoun, Carroll, Crawford, Emmet, Greene, Hamilton, Hancock, Humboldt, Kossuth, Palo Alto, Pocahontas, Webster and Winnebago.

11. Pop. 203,470: Buena Vista, Cherokee, Clay, Dickinson, Ida, Lyon, Monona, O'Brien, Osceola, Plymouth, Sac, Sioux and Woodbury.

KANSAS.

1. Pop. 167,314: Atchinson, Brown, Doniphan, Jackson, Jefferson, Leavenworth, Nemaha and Pottawatomie.

2. Pop. 209,148: Allen, Anderson, Bourbon, Douglas, Franklin, Johnson, Linn, Miami and Wyandotte.

3. Pop. 201,584: Chautauqua, Cherokee, Cowley, Crawford, Elk, Labette, Montgomery, Neosho and Wilson.

4. Pop. 214,544: Butler, Chase, Coffee, Greenwood, Lyon, Marion, Morris, Osage, Shawnee, Wabaunsee and Woodson.

5. Pop. 177,151: Clay, Cloud, Dickinson, Geary, Marshall, Ottawa, Republic, Riley, Saline and Washington.

6. Pop. 179,147: Cheyenne, Decatur, Ellis, Ellsworth, Gove, Graham, Jewell, Lincoln, Logan, Mitchell, Norton, Osborne,

Phillips, Rawlins, Rooks, Russell, Sheridan, Sherman, Smith, Thomas, Trego and Wallace.

7. Pop. 278,208: Barber, Barton, Clark, Comanche, Edwards, Finney, Ford, Grant, Gray, Greeley, Hamilton, Harper, Harvey, Haskell, Hodgeman, Kearney, Kingman, Kiowa, Lane, McPherson, Meade, Morton, Ness, Pawnee, Pratt, Reno, Rice, Rush, Scott, Seward, Sedgwick, Stafford, Stanton, Stevens, Sumner and Wichita.

KENTUCKY.

1. Pop. 170,500: Ballard, Caldwell, Calloway, Carlisle, Crittenden, Fulton, Graves, Hickman, Livingston, Lyon, Marshall, McCracken and Trigg.

2. Pop. 178,808: Christian, Daviess, Hancock, Henderson, Hopkins, McLean, Union and Webster.

3. Pop. 176,471: Allen, Barren, Butler, Cumberland, Edmonson, Logan, Monroe, Muhlenberg, Simpson, Todd and Warren.

4. Pop. 192,055: Breckinridge, Bullitt, Grayson, Green, Hardin, Hart, Larne, Marion, Meade, Nelson, Ohio, Taylor and Washington.

5. Pop. 188,598: Jefferson.

6. Pop. 160,649: Boone, Campbell, Carroll, Gallatin, Grant, Kenton, Pendleton and Trimble.

7. Pop. 141,461: Bourbon, Fayette, Franklin, Henry, Oldham, Owen, Scott and Woodford.

8. Pop. 142,671: Anderson, Boyle, Garrard, Jackson, Jessamine, Lincoln, Madison, Mercer, Rockcastle, Shelby and Spencer.

9. Pop. 176,212: Bath, Boyd, Bracken, Carter, Fleming, Greenup, Harrison, Lawrence, Lewis, Mason, Nicholas, Robertson and Rowan.

10. Pop. 149,058: Breathitt, Clark, Elliott, Estill, Floyd, Johnson, Knott, Lee, Martin, Magoffin, Menifee, Montgomery, Morgan, Pike, Powell and Wolfe.

11. Pop. 187,481: Adair, Bell, Casey, Clay, Clinton, Harlan, Knox, Laurel, Letcher, Leslie, Metcalfe, Owsley, Perry, Pulaski, Russell, Wayne and Whitley.

LOUISIANA.

1. Pop. 154,913: City of New Orleans.—Third, Fourth, Fifth, Sixth, Seventh, Eighth, Ninth and Fifteenth wards. Parishes.—Orleans, St. Bernard, and Plaquemines, extending from Julia street in the city of New Orleans to the Gulf of Mexico.

2. Pop. 152,025: City of New Orleans.—First, Second, Tenth, Eleventh, Twelfth, Thirteenth, Fourteenth, Sixteenth and Seventeenth wards. Parishes.—Jefferson, St. Charles, St. James and St. John the Baptist.

3. Pop. 214,785: Parishes.—Ascension, Assumption, Calcasieu, Cameron, Iberia, Iberville, Lafayette, Lafourche, St. Martin, St. Mary, Terrebonne and Vermilion.

There is no joy without alloy.

The Congress Districts of Each State.—Continued.

4. Pop. 193,760: Parishes.—Bienville, Bossier, Caddo, DeSoto, Grant, Natchitoches, Rapides, Red River, Sabine, Vernon, Webster and Winn.

5. Pop. 194,302: Parishes.—Caldwell, Catahoula, Claiborne, Concordia, East Carroll, Franklin, Jackson, Lincoln, Madison, Morehouse, Ouachita, Richland, Tensas, West Carroll and Union.

6. Pop. 208,802: Parishes.—Acadia, Avoyelles, East Baton Rouge, East Feliciana, Livingston, Pointe Coupee, St. Helena, St. Landry, St. Tammany, Tangipahoa, West Baton Rouge, West Feliciana and Washington.

MAINE.

1. Pop. 153,778: Cumberland and York.

2. Pop. 169,528: Androscoggin, Franklin, Knox, Lincoln, Oxford and Sagadahoc.

3. Pop. 154,710: Hancock, Kennebec, Somerset and Waldo.

4. Pop. 183,070: Aroostook, Penobscot, Piscataquis and Washington.

MARYLAND.

1. Pop. 158,246: Caroline, Dorchester, Kent, Queen Anne, Somerset, Talbot, Wicomico and Worcester.

2. Pop. 208,165: City of Baltimore.—Twentieth, Twenty-first and Twenty-second wards and Ninth precinct of Eleventh ward. Counties.—Second, Third, Fourth, Fifth, Sixth, Seventh, Eighth, Ninth, Tenth, Eleventh and Twelfth district of Baltimore county, Carroll, Cecil and Hartford.

3. Pop. 166,799: City of Baltimore.—First, Second, Third, Fourth, Fifth, Sixth, Seventh, Fifteenth and Sixteenth wards.

4. Pop. 183,005: City of Baltimore.—Eighth, Ninth, Tenth, Eleventh, Twelfth, Thirteenth, Fourteenth, Eighteenth and Nineteenth wards.

5. Pop. 153,912: Anne Arundel, Calvert, Charles, Howard, Prince George and St. Mary's, the First and Thirteenth election districts of Baltimore county, and the Seventeenth ward of Baltimore city.

6. Pop. 172,263: Allegany, Frederick, Garrett, Montgomery and Washington.

MASSACHUSETTS.

1. Pop. 170,297: Berkshire county.—Towns of Adams, Alford, Becket, Cheshire, Clarksburg, Dalton, Egremont, Florida, Great Barrington, Hancock, Hinsdale, Lanesboro, Lee, Lenox, Monterey, Mount Washington, New Ashford, New Marlboro, North Adams, Otis, Peru, Pittsfield, Richmond, Sandisfield, Savoy, Sheffield, Stockbridge, Tyringham, Washington, West Stockbridge, Williamstown and Windsor. Franklin county.—Towns of Ashfield, Bernardston, Buckland, Charlemont, Coleraine, Conway, Deerfield, Gill, Greenfield, Hawley, Heath, Leyden, Monroe, Rowe, Shelburne and Whately. Hampden county.—City of Holyoke and towns of

Agawam, Blandford, Chester, Granville, Montgomery, Russell, Southwick, Tolland, Westfield and West Springfield. Hampshire county.—Towns of Chesterfield, Cummington, Goshen, Hatfield, Huntington, Middlefield, Plainfield, Southampton, Westhampton, Williamsburg and Worthington.

2. Pop. 173,951: Franklin county.—Towns of Erving, Leverett, Montague, New Salem, Northfield, Orange, Shutesbury, Sunderland, Warwick and Wendell. Hampden county.—Cities of Chicopee and Springfield and towns of Brimfield, Hampden, Holland, Longmeadow, Ludlow, Monson, Palmer, Wales and Wilbraham. Hampshire county.—City of Northampton and towns of Amherst, Belchertown, Easthampton, Enfield, Granby, Greenwich, Hadley, Pelham, Prescott, South Hadley and Ware. Worcester county.—Towns of Athol, Barre, Brookfield, Dana, Hardwick, New Braintree, North Brookfield, Oakham, Petersham, Phillipston, Royalston, Templeton, Warren, West Brookfield and Winchendon.

3. Pop. 171,474: Middlesex county.—Town of Hopkinton. Worcester county.—City of Worcester and towns of Auburn, Blackstone, Charlton, Douglass, Dudley, Grafton, Holden, Leicester, Mendon, Milbury, Northbridge, Oxford, Paxton, Rutland, Shrewsbury, Southbridge, Spencer, Sturbridge, Sutton, Upton, Uxbridge, Webster, Westboro and West Boylston.

4. Pop. 170,221: Worcester county.—City of Fitchburg and towns of Ashburnham, Berlin, Bolton, Boylston, Clinton, Gardner, Harvard, Hubbardston, Lancaster, Leominster, Lunenburg, Northboro, Princeton, Southboro, Sterling and Westminster. Middlesex county.—City of Waltham and towns of Acton, Ashby, Ashland, Ayer, Bedford, Billerica, Boxboro, Burlington, Carlisle, Chelmsford, Concord, Dunstable, Framingham, Groton, Hudson, Lexington, Lincoln, Littleton, Marlboro, Maynard, Natick, Pepperell, Shirley, Stow, Sudbury, Townsend, Tyngsboro, Wayland, Westford and Weston. Norfolk county.—Wellesley.

5. Pop. 172,178: Essex county.—City of Lawrence and towns of Andover, Lynnfield, Methuen, North Andover and Peabody. Middlesex county.—Cities of Lowell and Woburn and towns of Dracut, North Reading, Reading, Tewksbury and Wilmington.

6. Pop. 169,418: Essex county.—Cities of Gloucester, Haverhill, Newburyport and Salem, and towns of Amesbury, Beverly, Boxbord, Bradford, Danvers, Essex, Georgetown, Groveland, Hamilton, Ipswich, Manchester, Marblehead, Merrimac, Middleton, Newbury, Rockport, Rowley, Salisbury, Swampscott, Topsfield, Wenham, and West Newbury.

7. Pop. 174,866: Essex county.—City of Lynn and towns of Nahant and Saugus.

Sauce for the goose is sauce for the gander.

The Congress Districts of Each State.—Continued.

Middlesex county.—Cities of Everett and Malden and towns of Melrose, Stoneham and Wakefield. Suffolk county.—Fourth and Fifth wards of the city of Boston, the city of Chelsea and the town Revere.

8. Pop. 174,274: Middlesex county.—Cities of Cambridge, Medford and Somerville and towns of Arlington and Winchester. Suffolk county.—Ninth, Tenth and Eleventh wards of the city of Boston.

9. Pop. 170,453: Suffolk county.—First, Second, Third, Sixth, Seventh, Eighth, Twelfth, Sixteenth, Seventeenth and Eighteenth wards and the Second, Third, Fourth and Sixth precincts of the Nineteenth ward of the city of Boston, and the town of Winthrop.

10. Pop. 174,008: Suffolk county.—Thirteenth, Fourteenth, Fifteenth, Twentieth, Twenty-second and Twenty-fourth wards and the First, Fifth, Seventh, Eighth and Ninth precincts of the Nineteenth ward of the city of Boston. Norfolk county.—City of Quincy and town of Milton.

11. Pop. 173,185: Suffolk county.—Twenty-first, Twenty-third and Twenty-fifth wards of the city of Boston. Middlesex county.—City of Newton and towns of Belmont, Holliston, Sherborn and Watertown. Norfolk county.—Towns of Bellingham, Brookline, Dedham, Dover, Foxboro, Franklin, Hyde Park, Medfield, Medway, Millis, Needham, Norfolk, Norwood, Sharon, Walpole and Wrentham. Bristol county.—Town of North Attleboro. Worcester county.—Towns of Hopedale and Milford.

12. Pop. 173,063: Bristol county.—City of Taunton and towns of Attleboro, Berkeley, Dighton, Easton, Mansfield, Norton, Raynham, Rehoboth and Seekonk. Norfolk county.—Towns of Avon, Braintree, Canton, Cohasset, Holbrook, Randolph, Stoughton and Weymouth. Plymouth county.—City of Brockton and towns of Abington, Bridgewater, Carver, Duxbury, East Bridgewater, Halifax, Hanover, Hanson, Hingham, Hull, Kingston, Lakeville, Marshfield, Middleboro, Norwell, Pembroke, Plymouth, Plympton, Rockland, Scituate, West Bridgewater and Whitman.

13. Pop. 171,535: Barnstable county.—Towns of Barnstable, Bourne, Brewster, Chatham, Dennis, Eastham, Falmouth, Harwich, Mashpee, Orleans, Provincetown, Sandwich, Truro, Wellfleet and Yarmouth. Bristol county.—Cities of Fall River and New Bedford and towns of Acushnet, Dartmouth, Fairhaven, Freetown, Somerset, Swansea and Westport. Dukes county.—Towns of Chilmark, Cottage City, Edgartown, Gay Head, Gosnold and Tisbury. Nantucket county.—Town of Nantucket. Plymouth county.—Towns of Marion, Mattapoisett, Rochester and Wareham.

MICHIGAN.

1. Pop. 173,841: Part of Wayne county.
2. Pop. 191,841: Jackson, Lenawee,

Monroe, Washtenaw and part of Wayne.
3. Pop. 172,319: Branch, Calhoun, Eaton, Hillsdale and Kalamazoo.

4. Pop. 180,179: Allegan, Barry, Berrien, Cass, St. Joseph and Van Buren.

5. Pop. 178,081: Ionia, Kent and Ottawa.

6. Pop. 190,539: Genesee, Ingham, Livingston, Oakland; townships of Lavonia, Redford, Greenfield, Nankin, Dearborn, and Springwells of the county of Wayne, and the Twelfth, Fourteenth and Sixteenth wards of the city of Detroit.

7. Pop. 181,435: Huron, Lapeer, Macomb, Sanilac and St. Clair, and Grosse Point, and Hamtramck townships of Wayne county.

8. Pop. 172,242: Clinton, Saginaw, Shiawassee and Tuscola.

9. Pop. 148,626: Benzie, Lake, Leelanaw, Manistee, Manitou, Mason, Muskegon, Newaygo, Ocean and Wexford.

10. Pop. 154,811: Alcona, Alpena, Arenac, Bay, Cheyboygan, Crawford, Emmet, Gladwin, Iosco, Midland, Montmorency, Ogemaw, Oscoda, Otsego and Presque Isle.

11. Pop. 167,669: Antrim, Charlevoix, Clare, Grand Traverse, Gratiot, Isabella, Kalkaska, Mecosta, Missaukee, Montcalm, Osceola and Roscommon.

12. Pop. 180,658: Alger, Baraga, Chippewa, Delta, Dickinson, Gogebic, Houghton, Iron, Isle Royal, Keweenaw, Luce, Mackinac, Marquette, Menominee, Ontonagon and Schoolcraft.

MINNESOTA.

1. Pop. 185,584: Dodge, Fillmore, Freeborn, Houston, Moore, Olmsted, Steele, Wabasha, Waseca and Winona.

2. Pop. 188,480: Blue Earth, Brown, Chippewa, Cottonwood, Faribault, Jackson, Lac Qui Parle, Lincoln, Lyon, Martin, Murray, Nicollet, Nobles, Pipestone, Redwood, Rock, Wagonwan and Yellow Medicine.

3. Pop. 187,215: Carver, Dakota, Goodhue, Lesueur, McLeod, Meeker, Renville, Rice, Scott and Sibley.

4. Pop. 185,333: Chisago, Isanti, Kanabec, Ramsay and Washington.

5. Pop. 185,294: Hennepin.

6. Pop. 184,848: Aitkin, Anoka, Beltrami, Benton, Carlton, Cass, Cook, Crow Wing, Hubbard, Itasca, Lake, Millelacs, Morrison, Pine, St. Louis, Sherburne, Stearns, Todd, Wadena and Wright.

7. Pop. 185,983: Becker, Bigstone, Clay, Douglas, Grant, Kandiyohi, Kittson, Marshall, Norman, Ottertail, Polk, Pope, Stevens, Swift, Traverse and Wilkin.

MISSISSIPPI.

1. Pop. 143,315: Alcorn, Itawamba, Lee, Lowndes, Monroe, Oktibbeha, Prentiss and Tishomingo.

2. Pop. 170,512: Benton, DeSoto, Lafayette, Marshall, Panola, Tallahatchie, Tate, Tippah and Union.

To every beginning there is an end.

The Congress Districts of Each State.—Continued.

3. Pop. 184,297: Bolivar, Coahoma, Issaquena, Leflore, Quitman, Sharkey, Sunflower, Tunica, Warren and Washington.

4. Pop. 213,236: Calhoun, Carroll, Chickasaw, Choctaw, Clay, Granada, Kemper, Montgomery, Noxubee, Pontotoc, Webster, Winston and Yalobusha.

5. Pop. 224,618: Attala, Clarke, Holmes, Jasper, Lauderdale, Leake, Neshoba, Newton, Scott, Smith, Wayne and Yazoo.

6. Pop. 166,913: Adams, Amite, Covington, Greene, Hancock, Harrison, Jackson, Jones, Lawrence, Marion, Perry, Pike and Wilkinson.

7. Pop. 186,692: Claiborne, Copiah, Franklin, Hines, Jefferson, Lincoln, Madison, Rankin and Simpson.

MISSOURI.

1. Pop. 179,344: Adair, Clark, Knox, Lewis, Macon, Marion, Putnam, Schuyler, Scotland and Shelby.

2. Pop. 179,344: Carroll, Charlton, Grundy, Linn, Livingston, Monroe, Randolph and Sullivan.

3. Pop. 174,726: Caldwell, Clay, Clinton, Daviess, Dekalb, Gentry, Harrison, Mercer, Ray and Worth.

4. Pop. 164,264: Andrew, Atchison, Buchanan, Holt, Nodaway and Platte.

5. Pop. 190,694: Jackson and Lafayette.

6. Pop. 161,784: Bates, Cass, Cedar, Dade, Henry, Johnson and St. Clair.

7. Pop. 201,708: Benton, Boone, Greene, Hickory, Howard, Pettis, Polk and Saline.

8. Pop. 188,313: Callaway, Camden, Cole, Cooper, Dallas, Laclede, Maries, Miller, Moniteau, Morgan, Osage, Phelps and Pulaski.

9. Pop. 152,442: Audrain, Crawford, Gasconade, Lincoln, Montgomery, Pike, Ralls, St. Charles and Warren.

10. Pop. 172,447: St. Louis, Franklin, and part of the city of St. Louis, embracing the Fifth, Seventh, Ninth, Eleventh and Thirteenth wards and four precincts of the Twenty-third ward.

11. Pop. 187,802: City of St. Louis (part of), embracing the Fourth, Sixth, Eighth, Tenth, Twelfth, Fourteenth, Sixteenth, Eighteenth, Twenty-fourth and Twenty-sixth wards, two precincts of the Fifteenth, four precincts each of the Twenty-second and Twenty-eighth wards and one precinct of the Twentieth ward.

12. Pop. 155,884: City of St. Louis (part of), embracing the First, Second, Third, Seventeenth, Nineteenth, Twenty-fifth, Twenty-seventh, and parts of the Eleventh, Fifteenth, Twentieth, Twenty-first, Twenty-second, Twenty-third and Twenty-eighth wards.

13. Pop. 187,994: Carter, Dent, Iron, Jefferson, Madison, Ferry, Reynolds, Shannon, Ste. Genevieve, St. Francois, Texas, Washington, Wayne, Webster and Wright.

14. Pop. 230,478: Bollinger, Butler, Cape Girardeau, Christian, Douglas, Dun-

klin, Howell, Mississippi, New Madrid, Oregon, Ozark, Pemiscot, Ripley, Scott, Stoddard, Stone and Taney.

15. Pop. 183,071: Barry, Barton, Jasper, Lawrence, McDonald, Newton and Vernon.

MONTANA.

Pop. 132,159: State at large.

NEBRASKA.

1. Pop. 177,055: Cass, Johnson, Lancaster, Nemaha, Otoe, Pawnee and Richardson.

2. Pop. 176,752: Douglas, Sarpy and Washington.

3. Pop. 163,674: Antelope, Boone, Burt, Cedar, Colfax, Cuming, Dakota, Dixon, Dodge, Knox, Madison, Merrick, Nance, Pierce, Platte, Stanton, Thurston and Wayne.

4. Pop. 195,414: Butler, Fillmore, Gage, Hamilton, Jefferson, Polk, Saline, Saunders, Seward, Thayer and York.

5. Pop. 169,459: Adams, Chase, Clay, Dundy, Franklin, Frontier, Furnas, Gosper, Hall, Harlan, Hayes, Hitchcock, Kearney, Nuckolls, Perkins, Phelps, Red Willow and Webster.

6. Pop. 176,556: Arthur, Banner, Blaine, Boxbutte, Brown, Buffalo, Cherry, Cheyenne, Custer, Dawes, Dawson, Deuel, Garfield, Grant, Greeley, Holt, Hooker, Howard, Keith, Keyapaha, Kimball, Lincoln, Logan, Loup, McPherson, Rock, Scott's Bluff, Sheridan, Sherman, Sioux, Thomas, Valley and Wheeler.

NEVADA.

Pop. 45,761: State at large

NEW HAMPSHIRE.

1. Pop. 190,532: Belknap, Carroll, Rockingham and Strafford. Hillsboro county.—Towns of Bedford, Goffstown, Merrimack, Hudson, Litchfield, Manchester and Pelham. Merrimack county.—Towns of Allentown, Canterbury, Chichester, Epsom, Hookset, Loudon, Northfield, Pembroke and Pittsfield.

2. Pop. 185,998: Cheshire, Coos, Grafton and Sullivan. Hillsboro county.—Towns of Amherst, Antrim, Bennington, Brookline, Deering, Francestown, Greenfield, Greenville, Hancock, Hillsboro, Hollis, Lyndeboro, Mason, Milford, Mount Vernon, Nashua, New Boston, New Ipswich, Peterboro, Sharon, Temple, Weare, Wilton and Windsor. Merrimack county.—Towns of Andover, Boscawen, Bow, Bradford, Concord, Danbury, Dunbarton, Franklin, Henniker, Hill, Hopkinton, Newbury, New London, Salisbury, Sutton, Warner, Webster and Wilmot.

NEW JERSEY.

1. Pop. 198,193: Camden, Cape May, Cumberland, Gloucester and Salem.

2. Pop. 183,316: Atlantic, Burlington, Mercer and Ocean.

Many hands make light work.

The Congress Districts of Each State.—Continued.

3. Pop. 159,193: Middlesex, Monmouth, and Somerset.

4. Pop. 148,268: Hunterdon, Morris, Sussex and Warren.

5. Pop. 152,272: Bergen and Passaic.

6. Pop. 230,000, estimated January 1, 1895: Part of Essex, comprising the city of Newark (15 wards) and the township of East Orange (5 wards).

7. Pop. 256,093: All of Hudson county, except the city of Bayonne.

8. Pop. 125,793: Part of Essex, part of Hudson and Union.

NEW YORK.

1. Pop. 190,550: Queens and Suffolk.

2. Pop. 169,449: Kings.—First, Second, Fifth, Sixth, Seventh, Eleventh and Twentieth wards of the city of Brooklyn.

3. Pop. 174,741: Kings.—Third, Fourth, Ninth, Tenth, Twenty-second and Twenty-third wards of the city of Brooklyn and the town of Flatbush.

4. Pop. 169,387: Kings.—Eighth, Twelfth, Twenty-fifth and Twenty-sixth wards of the city of Brooklyn, together with the towns of New Utrecht, Gravesend and Flatlands.

5. Pop. 161,362: Kings.—The territory comprised in the present Eighteenth, Nineteenth, Twenty-first, Twenty-seventh and Twenty-eighth wards of the city of Brooklyn.

6. Pop. 163,648: Kings.—Thirteenth, Fourteenth, Fifteenth, Sixteenth, and Seventeenth wards of the city of Brooklyn.

7. Pop. 114,766: Richmond, together with the First and Fifth assembly districts of the county of New York.

8. Pop. 125,778: City of New York.—Second, Third and Seventh assembly districts of the county of New York.

(Note.—This district now runs from Peck slip to Catherine street, on the East river; along Catherine street to the Bowery; up the Bowery, down Seventh avenue to Sixteenth street; then over to Eighth avenue; down Eighth avenue and Third avenue to Twenty-third street; across to Seventh avenue to Bleecker street, and thence to Broadway; down the east side of Broadway to and including the City Hall; thence down Spruce street to the East river.)

9. Pop. 189,067: City of New York.—Fourth, Sixth and Eighth assembly districts of the county of New York.

10. Pop. 156,537: City of New York.—Ninth, Thirteenth, and Fifteenth assembly districts of the county of New York.

11. Pop. 148,640: City of New York.—Tenth, Twelfth and Fourteenth assembly districts of the county of New York.

12. Pop. 130,311: City of New York.—Eleventh, Sixteenth and Eighteenth assembly districts of the county of New York.

13. Pop. 186,283: City of New York.—Embracing the Seventeenth, Twentieth

and a portion of the Twenty-first assembly districts of the county of New York.

14. Pop. 227,978: City of New York.—Nineteenth assembly district of the county of New York; that portion of the Twenty-first assembly district between the center of Fifty-ninth street and the center of Seventy-ninth street, and that portion of the Twenty-second assembly district below the center of Seventy-ninth street, in the city of New York.

15. Pop. 223,838: City of New York.—That portion of the Twenty-first assembly district between the center of Seventy-ninth street and the center of Eighty-sixth street; that portion of the Twenty-second district above the center of Seventy-ninth street, in the city of New York, and the Twenty-third assembly district of the county of New York.

16. Pop. 220,857: Westchester, together with the Twenty-fourth assembly district of the city of New York.

17. Pop. 164,052: Orange, Rockland and Sullivan.

18. Pop. 179,790: Ulster, Dutchess and Putnam.

19. Pop. 170,683: Columbia and Rensselaer.

20. Pop. 164,555: Albany.

21. Pop. 187,119: Greene, Montgomery, Otsego, Schenectady and Schoharie.

22. Pop. 185,123: Fulton, Hamilton, Saratoga and St. Lawrence.

23. Pop. 191,155: Clinton, Essex, Franklin, Warren and Washington.

24. Pop. 170,495: Jefferson, Lewis and Oswego.

25. Pop. 168,530: Oneida and Herkimer.

26. Pop. 209,103: Broome, Chenango, Delaware, Tioga and Tompkins.

27. Pop. 189,139: Madison and Onondaga.

28. Pop. 213,142: Cayuga, Cortland, Ontario, Wayne and Yates.

29. Pop. 174,676: Chemung, Schuyler, Seneca and Steuben.

30. Pop. 195,553: Genesee, Livingston, Niagara, Orleans and Wyoming.

31. Pop. 189,586: Monroe.

32. Pop. 164,450: Erie (part of), embracing the First, Second, Third, Fourth, Fifth, Sixth, Seventh, Eighth, Ninth, Tenth, Eleventh, Twelfth, Thirteenth, Fourteenth, Nineteenth and Twentieth wards of the city of Buffalo.

33. Pop. 158,531: Erie (part of), embracing the Fifteenth, Sixteenth, Seventeenth, Eighteenth, Twenty-first, Twenty-second, Twenty-third, Twenty-fourth and Twenty-fifth wards of the city of Buffalo and Fourth and Fifth assembly districts of the county of Erie.

34. Pop. 179,308: Allegany, Cattaraugus and Chautauqua.

NORTH CAROLINA.

1. Pop. 172,604: Beaufort, Camden, Carteret, Chowan, Currituck, Dare, Gates,

The Congress Districts of Each State.—Continued.

Hertford, Hyde, Martin, Pamlico, Pasquotank, Perquimans, Pitt, Tyrrell and Washington.

2. Pop. 182,461: Bertie, Edgecombe, Greene, Halifax, Lenoir, Northampton, Warren, Wayne and Wilson.

3. Pop. 160,288: Bladen, Craven, Cumberland, Duplin, Harnett, Jones, Moore, Onslow and Sampson.

4. Pop. 186,432: Chatham, Franklin, Johnston, Nash, Randolph, Vance and Wake.

5. Pop. 177,537: Alamance, Caswell, Durham, Granville, Guilford, Orange, Person, Rockingham and Stokes.

6. Pop. 204,686: Anson, Brunswick, Columbus, Mecklenburg, New Hanover, Pender, Richmond, Robeson and Union.

7. Pop. 169,490: Cabarrus, Catawba, Davidson, Davie, Iredell, Lincoln, Montgomery, Rowan, Stanly and Yadkin.

8. Pop. 190,784: Alexander, Alleghany, Ashe, Burke, Caldwell, Cleveland, Forsyth, Gaston, Mitchell, Surry, Watauga and Wilkes.

9. Pop. 173,665: Buncombe, Cherokee, Clay, Graham, Haywood, Henderson, Jackson, Macon, Madison, McDowell, Polk, Rutherford, Swain, Transylvania and Yancey.

NORTH DAKOTA.

Pop. 182,719: State at large.

OHIO.

1. Pop. 169,280: Hamilton.—First, Second, Third, Fourth, Fifth, Sixth, Seventh, Eighth, Ninth, Tenth, Eleventh, Eighteenth, Twenty-sixth and Twenty-seventh wards of the city of Cincinnati, Anderson, Columbia, Spencer, Symmes and Sycamore townships, and Northeast, Southeast, Bond Hill, Clifton, Avondale and St. Bernard precincts of Mill Creek Township.

2. Pop. 205,293: Hamilton.—Twelfth, Thirteenth, Fourteenth, Fifteenth, Sixteenth, Seventeenth, Nineteenth, Twentieth, Twenty-first, Twenty-second, Twenty-third, Twenty-fourth, Twenty-fifth, Twenty-eighth, Twenty-ninth and Thirtieth wards of the city of Cincinnati, the townships of Springfield, Colerain, Greene, Delhi, Storrs, Miami, Whitewater, Harrison and Crosby, Elmwood, College Hill, Western, and Winton Place precincts of Mill Creek Township.

3. Pop. 172,870: Butler, Montgomery and Preble.

4. Pop. 163,632: Allen, Auglaize, Darke, Mercer and Shelby.

5. Pop. 161,537: Defiance, Henry, Paulding, Putnam, Van Wert and Williams.

6. Pop. 172,028: Brown, Clermont, Clinton, Greene, Highland and Warren.

7. Pop. 161,537: Clark, Fayette, Madison, Miami and Pickaway.

8. Pop. 175,917: Champaign, Delaware, Hancock, Hardin, Logan and Union.

9. Pop. 190,685: Fulton, Lucas, Ottawa and Wood.

10. Pop. 173,921: Adams, Gallia, Jackson, Lawrence, Pike and Scioto.

11. Pop. 174,315: Athens, Hocking, Meigs, Perry, Ross and Vinton.

12. Pop. 158,026: Fairfield and Franklin.

13. Pop. 185,324: Crawford, Erie, Marion, Sandusky, Seneca and Wyandot.

14. Pop. 178,259: Ashland, Huron, Knox, Lorain, Morrow and Richmond.

15. Pop. 162,131: Guernsey, Morgan, Muskingum, Noble and Washington.

16. Pop. 160,399: Belmont, Carroll, Harrison, Jefferson and Monroe.

17. Pop. 176,744: Coshocton, Holmes, Licking, Tuscarawas and Wayne.

18. Pop. 199,178: Columbiana, Mahoning and Stark.

19. Pop. 181,474: Ashtabula, Geauga, Portage, Summit and Trumbull.

20. Pop. 177,240: Lake, Medina, and the townships of Bedford, Brecksville, Brooklyn, Chagrin Falls, Dover, East Cleveland, Euclid, Independence, Mayfield, Middleburg, Newburg, Olmstead, Orange, Parma, Rockport, Royalton, Solon, Strongsville and Warrensville of Cuyahoga county, and the Twenty-sixth, Twenty-eighth, Twentyninth, Thirtieth, Thirty-first, Thirty-second, Thirty-third, Thirty-fourth, Thirty-fifth, Thirty-sixth, Thirty-seventh, Thirty-eighth, Thirty-ninth and Fortieth wards of the city of Cleveland as they are now constituted.

21. Pop. 172,707: Cuyahoga.—First, Second, Third, Fourth, Fifth, Sixth, Seventh, Eighth, Ninth, Tenth, Eleventh, Twelfth, Thirteenth, Fourteenth, Fifteenth, Sixteenth, Seventeenth, Eighteenth, Nineteenth, Twentieth, Twenty-first, Twenty-second, Twenty-third, Twenty-fourth, Twenty-fifth and Twenty-seventh wards of the city of Cleveland.

OREGON.

1. Pop. 155,562: Benton, Clackamas, Coos, Curry, Douglas, Jackson, Josephine, Klamath, Lake, Lane, Linn, Marion, Polk, Tillamook, Washington and Yamhill.

2. Pop. 158,205: Baker, Crook, Clatsop, Columbia, Gilliam, Grant, Harney, Malheur, Morrow, Multnomah, Sherman, Umatilla, Union, Wallowa and Wasco.

PENNSYLVANIA.

1. Pop. 208,370: City of Philadelphia.—First, Second, Seventh, Twenty-sixth and Thirtieth wards.

2. Pop. 131,416: City of Philadelphia.—Eighth, Ninth, Tenth, Thirteenth, Fourteenth and Twentieth wards.

3. Pop. 129,764: City of Philadelphia.—Third, Fourth, Fifth, Sixth, Eleventh, Twelfth, Sixteenth and Seventeenth wards.

4. Pop. 309,986: City of Philadelphia.—Fifteenth, Twenty-first, Twenty-fourth,

Patient waiters are no losers.

The Congress Districts of Each State.—*Continued.*

Twenty-seventh, Twenty-eighth, Twenty-ninth, Thirty-second, Thirty-fourth and Thirty-seventh wards.

5. Pop. 267,422: City of Philadelphia.—Eighteenth, Nineteenth, Twenty-second, Twenty-third, Twenty-fifth, Thirty-first and Thirty-third wards.

6. Pop. 164,060: Chester and Delaware.

7. Pop. 193,905: Bucks and Montgomery.

8. Pop. 152,367: Carbon, Monroe, Northampton and Pike.

9. Pop. 213,958: Berks and Lehigh.

10. Pop. 149,095: Lancaster.

11. Pop. 142,088: Lackawanna.

12. Pop. 201,203: Luzerne.

13. Pop. 154,163: Schuylkill.

14. Pop. 171,384: Dauphin, Lebanon and Perry.

15. Pop. 146,227: Bradford, Susquehanna, Wayne and Wyoming.

16. Pop. 174,375: Clinton, Lycoming, Potter and Tioga.

17. Pop. 138,795: Columbia, Montour, Northumberland and Sullivan.

18. Pop. 169,443: Franklin, Fulton, Huntingdon, Juniata, Mifflin, Snyder and Union.

19. Pop. 180,246: Adams, Cumberland and York.

20. Pop. 213,202: Bedford, Blair, Cambria and Somerset.

21. Pop. 245,746: Armstrong, Indiana, Jefferson and Westmoreland.

22. Pop. 279,355: City of Pittsburg and all townships and boroughs lying between the Monongahela and Allegheny rivers, except the borough of McKeesport and boroughs and townships lying between the Youghiogheny and Monongahela rivers, in the county of Allegheny.

23. Pop. 164,215: City of Allegheny and all the townships and boroughs lying north of the Allegheny and Ohio rivers in the county of Allegheny.

24. Pop. 288,485: Fayette, Greene and Washington, all boroughs and townships lying south of the Monongahela and Ohio rivers, the boroughs and townships lying between the Youghiogheny and Monongahela rivers, and the borough of McKeesport, in the county of Allegheny.

25. Pop. 198,677: Beaver, Butler, Lawrence and Mercer.

26. Pop. 151,398: Crawford and Erie.

27. Pop. 138,326: Cameron, McKean, Venango and Warren.

28. Pop. 180,357: Center, Clarion, Clearfield, Elk and Forest.

RHODE ISLAND.

1. Pop. 180,548: Bristol, Newport, and part of Providence, including the city of Providence.

2. Pop. 164,958: Cities and Towns.—Cities of Pawtucket and Woonsocket and the towns of Lincoln, Cumberland, North Providence, Smithfield, North Smithfield, Burrillville, Gloucester, Scituate, Foster,

Johnson, Cranston, Warwick, Coventry, West Greenwich, East Greenwich, North Kingston, South Kingston, Exeter, Richmond, Charlestown, Hopkinton and Westerly.

SOUTH CAROLINA.

1. Pop. — : Charleston, Georgetown and Beaufort, and the townships of Anderson, Hope, Indian, Kings, Laws, Mingo, Penn, Ridge, Sutton and Turkey, of the county of Williamsburg, the townships of Collins, Adams, Run, Glover, Frazier, Lowndes and Blake, of the county of Colleton, and all of the county of Berkeley except such townships as are embraced in the Seventh Congressional District.

2. Pop. 146,238: Aiken, Barnwell, Edgefield and Hampton.

3. Pop. 152,060: Abbeville, Anderson, Newberry, Oconee and Pickens.

4. Fairfield, Greenville and Laurens, all of the county of Spartanburg except the townships of White Plains and Limestone Springs, all of the county of Union except the townships of Gowdeysville and Draytonville and the townships of Center, Columbia and Upper, of the county of Richmond.

5. Pop. 141,750: Chester, Chesterfield, Kershaw, Lancaster and Dork, and two townships each in Spartanburg and Union counties.

6. Pop. 158,851: Clarendon, Darlington, Florence, Horry, Marion, Marlboro and part of Williamsburg.

7. Pop. 178,930: Lexington, Orangeburg, Sumter, the townships of Bells, Givhaus, Burns, George, Cain, Dorchester, Hayward, Koger, Sheridan, Verdier, Broxtons and Warren, of the county of Colleton, and the townships of St. James, Goose Creek, St. Johns, Berkeley and St. Stevens, of the county of Berkeley, and Lower Township, of the county of Richland.

SOUTH DAKOTA.

Pop. 328,808: State at large.

TENNESSEE.

1. Pop. 183,541: Carter, Claiborne, Cocke, Grainger, Greene, Hamblen, Hancock, Hawkins, Johnson, Sullivan, Unicoi and Washington.

2. Pop. 196,582: Anderson, Blount, Campbell, Jefferson, Knox, Loudon, Morgan, Roane, Scott, Sevier and Union.

3. Pop. 199,972: Bledsoe, Bradley, Franklin, Grundy, Hamilton, James, Marion, McMinn, Meigs, Monroe, Polk, Sequatchie, Van Buren, Warren and White.

4. Pop. 159,940: Clay, Cumberland, Fentress, Jackson, Macon, Overton, Pickett, Putnam, Rhea, Smith, Sumner, Trousdale and Wilson.

5. Pop. 153,773: Bedford, Cannon, Coffee, Dekalb, Lincoln, Marshall, Moore and Rutherford.

He gives twice who gives quickly.

The Congress Districts of Each State.—Continued.

6. Pop. 196,097: Cheatham, Davidson, Houston, Humphreys, Montgomery, Robertson and Stewart.

7. Pop. 153,846: Dickson, Giles, Hickman, Lawrence, Lewis, Maury, Wayne and Williamson.

8. Pop. 161,820: Benton, Carroll, Chester, Decatur, Hardin, Henderson, Henry, Madison, McNairy and Perry.

9. Pop. 174,729: Crockett, Dyer, Gibson, Haywood, Lake, Lauderdale, Obion and Weakley.

10. Pop. 186,918: Fayette, Hardeman, Shelby and Tipton.

TEXAS.

1. Pop. 102,827: Chambers, Freestone, Grimes, Harris, Leon, Madison, Montgomery, Trinity, Walker and Waller.

2. Pop. 210,238: Anderson, Angelina, Cherokee, Hardin, Harrison, Houston, Jasper, Jefferson, Liberty, Nacogdoches, Newton, Orange, Panola, Polk, Sabine, San Augustine, San Jacinto, Shelby and Tyler.

3. Pop. 133,188: Gregg, Henderson, Hunt, Rains, Rockwell, Rusk, Smith, Upshur, Van Zandt and Wood.

4. Pop. 170,001: Bowie, Camp, Cass, Delta, Franklin, Hopkins, Lamar, Marion, Morris, Red River and Titus.

5. Pop. 199,477: Collin, Cook, Denton, Fanning, Grayson and Montague.

6. Pop. 210,907: Bosque, Dallas, Ellis, Hill, Johnson, Kaufman and Navarro.

7. Pop. 182,894: Bell, Brazos, Falls, Limestone, McLennan, Milam and Robertson.

8. Pop. 174,048: Brown, Coleman, Corvell, Comanche, Erath, Hamilton, Hood, Lampasas, Mills, Parker, Runnels, Somerville and Tarrant.

9. Pop. 175,149: Bastrop, Burleson, Burnet, Caldwell, Hays, Lee, Travis, Washington and Williamson.

10. Pop. 166,308: Austin, Brazoria, Colorado, Fayette, Fort Bend, Galveston, Gonzales, Lavaca and Matagorda.

11. Pop. 189,958: Aransas, Atascosa, Bee, Cameron, Calhoun, Dewitt, Dimmit, Duval, Encinal, Frio, Goliad, Guadalupe, Hidalgo, Jackson, Karnes, Lasalle, Live Oak, McMullen, Nueces, Refugio, San Patricio, Starr, Uvalde, Victoria, Webb, Wharton, Wilson, Zapata and Zavalla.

12. Pop. 136,088: Bandera, Bexar, Blanco, Brewster, Buchel, Comal, Concho, Coke, Crane, Crockett, Ector, Edwards, Fole, Gillespie, Glasscock, Irion, Jeff Davis, Kerr, Kendall, Kimble, Kinney, Llano, Mason, Maverick, McCulloch, Medina, Menard, Midland, Pecos, Presidio, San Saba, Schleicher, Sterling, Sutton, Tom Green, Upton and Valverde.

13. Pop. 190,080: Andrews, Archer, Armstrong, Bailey, Baylor, Borden, Briscoe, Callahan, Carson, Castro, Childress, Clay, Cochran, Collingsworth, Cottle, Crosby, Dallam, Dawson, Deaf Smith, Dickens, Donley, Eastland, El Paso,

Fisher, Floyd, Foard, Gaines, Garza, Gray, Greer, Hale, Hall, Hansford, Hardeman, Hartley, Haskell, Hamphill, Hockley, Howard, Hutchinson, Jack, Jones, Kent, King, Knox, Lamp, Lipscomb, Loving, Lubbock, Lynn, Martin, Mitchell, Moore, Motley, Nolan, Ochiltree, Oldham, Palo Pinto, Parker, Potter, Randall, Reeves, Roberts, Scurry, Shackelford, Sherman, Stephens, Stonewall, Swisher, Taylor, Terry, Throckmorton, Ward, Wheeler, Wichita, Wilbarger, Winkler, Wise, Yockum and Young.

UTAH.

Pop. 207,905: State at large.

VERMONT.

1. Pop. 169,940: Addison, Bennington, Chittenden, Franklin, Grand Isle, Lamoille and Rutland.

2. Pop. 162,482: Caledonia, Essex, Orange, Orleans, Washington, Windham and Windsor.

VIRGINIA.

1. Pop. 187,010: Accomac, Caroline, Essex, Gloucester, King and Queen, Lancaster, Mathews, Middlesex, Northampton, Northumberland, Richmond, Spottsylvania and Westmoreland, and the city of Fredericksburg.

2. Pop. 145,536: Charles City, Elizabeth City, Isle of Wight, James City, Nansemond, Norfolk, Princess Anne, Southampton, Surry, Warwick and York, and the cities of Norfolk, Portsmouth, Williamsburg and Newport News.

3. Pop. 172,081: Chesterfield, Goochland, Hanover, Henrico, King William and New Kent, and the cities of Richmond and Manchester.

4. Pop. 159,508: Amelia, Brunswick, Dinwiddie, Greenville, Lunenburg, Mecklenburg, Nottoway, Powhatan, Prince Edward, Prince George and Sussex, and the city of Petersburg.

5. Pop. 161,577: Carroll, Floyd, Franklin, Grayson, Henry, Patrick and Pittsylvania, and the cities of Danville and North Danville.

6. Pop. 184,498: Bedford, Campbell, Charlotte, Halifax, Montgomery and Roanoke, and the cities of Lynchburg, Radford and Roanoke.

7. Pop. 155,197: Albemarle, Clarke, Frederick, Greene, Madison, Page, Rappahannock, Rockingham, Shenandoah and Warren, and the cities of Charlottesville and Winchester.

8. Pop. 147,968: Alexandria, Culpeper, Fairfax, Fauquier, King George, Loudoun, Louisa, Orange, Prince William and Stafford, and the city of Alexandria.

9. Pop. 187,467: Bland, Buchanan, Craig, Dickenson, Giles, Lee, Pulaski, Russell, Scott, Smyth, Tazewell, Washington, Wise and Wythe, and the city of Bristol.

10. Pop. 155,138: Alleghany, Amherst, Appomattox, Augusta, Bath, Botetourt,

The Congress Districts of Each State.—Continued.

Buckingham, Cumberland, Fluvanna, Highland, Nelson and Rockbridge, and the city of Staunton.

WASHINGTON.

Pop. 349,390: State at large.

WEST VIRGINIA.

1. Pop. 177,840: Braxton, Brooke, Doddridge, Gilmer, Hancock, Harrison, Lewis, Marshall, Ohio, Tyler and Wetzel.

2. Pop. 187,305: Barbour, Berkeley, Grant, Hampshire, Hardy, Jefferson, Marion, Mineral, Monongalia, Morgan, Pendleton, Preston, Randolph, Taylor and Tucker.

3. Pop. 202,289: Boone, Clay, Fayette, Greenbrier, Kanawha, Logan, McDowell, Mercer, Monroe, Nicholas, Pocahontas, Raleigh, Summers, Upshur, Webster and Wyoming.

4. Pop. 195,360: Cabell, Calhoun, Jackson, Lincoln, Mason, Pleasants, Putnam, Ritchie, Roane, Wayne, Wirt and Wood.

WISCONSIN.

1. Pop. 163,900: Green, Kenosha, Lafayette, Racine, Rock and Walworth.

2. Pop. 166,422: Columbia, Dane, Dodge and Jefferson.

3. Pop. 173,572: Adams, Crawford, Grant, Iowa, Juneau, Richland, Sauk and Vernon.

4. Pop. 181,000: Milwaukee (part of), embracing the First, Second, Third, Fourth, Fifth, Sixth, Seventh, Eighth, Ninth, Eleventh, Twelfth, Fourteenth, Fifteenth,

Sixteenth, Seventeenth and Eighteenth wards of the city of Milwaukee, and the towns of Franklin, Greenfield, Lake and Oak Creek.

5. Pop. 167,000: Ozaukee, Sheboygan, Washington and Waukesha, the Tenth and Thirteenth wards of the city of Milwaukee, and the towns of Granville, Milwaukee and Wauwatosa in Milwaukee County.

6. Pop. 187,001: Calumet, Fond du Lac, Green, Lake, Manitowoc, Marquette, Wau-shara and Winnebago.

7. Pop. 150,331: Buffalo, Eau Claire, Jackson, La Crosse, Monroe, Pepin and Trempealeau.

8. Pop. 179,408: Brown, Boor, Kewau-nee, Outagamie, Portage, Waupaca and Wood.

9. Pop. 164,777: Ashland, Clark, Florence, Forest, Langlade, Lincoln, Marathon, Marinette, Oconto, Price, Shawano and Taylor.

10. Pop. 149,845: Barron, Bayfield, Burnett, Chippewa, Douglas, Dunn, Pierce, Polk, Sawyer, St. Croix and Washburn.

WYOMING.

Pop. 60,705: State at large.

ARIZONA.

Pop. 59,620: Territory at large.

NEW MEXICO.

Pop. 153,593: Territory at large.

OKLAHOMA.

Pop. 61,834: Territory at large.

Ratio of Representation in Congress.

HOW DETERMINED.	Year.	Ratio.	No. of Rep- resentatives.	Population.
Constitution	1789	30,000	65	.....
First census.....	1793	30,000	105	3,929,214
Second census.....	1803	33,000	141	5,308,483
Third census.....	1813	35,000	181	7,239,881
Fourth census	1823	40,000	213	9,633,822
Fifth census.....	1833	47,700	240	12,866,020
Sixth census.....	1843	70,680	223	17,069,453
Seventh census.....	1853	93,423	233	23,191,876
Eighth census	1863	127,381	243	31,443,321
Ninth census.....	1873	131,425	293	38,558,371
Tenth census.....	1883	151,911	325	50,155,873
Eleventh census.....	1893	173,901	356	62,831,900

There is, properly speaking, no popular vote for president and vice president; the people vote for electors, and those chosen in each state meet therein and vote for the candidates for president and vice president. The record of any popular vote for electors prior to 1824 is so meager and imperfect that a compilation would be useless. In most of the states, for more than a quarter century following the establishment of the government, the state legislatures "appointed" the presidential electors, and the people, therefore, voted only indirectly for them, their choice being expressed by their votes for members of the legislature.

They who seek for faults see naught else.

Texas.....	15	..	15	..	15	..	13	..	8	370,434	167,520	5,045	1,786	.....	202,914 B	
Utah.....	3	4	3	..	..	..	..	..	..	64,517	19,484	21	.....	.....	51,033 B	
Vermont.....	4	4	..	4	..	..	4	5	..	10,637	51,127	1,331	733	.....	40,490 McK	
Virginia.....	12	..	12	..	12	..	12	..	11	154,799	135,368	2,129	2,350	108	19,341 B	
Washington.....	4	4	4	4	..	..	..	..	..	51,646	39,153	1,668	968	148	12,493 B	
West Virginia.....	6	6	..	6	..	..	6	6	5	92,927	104,414	677	1,203	.....	11,487 McK	
Wisconsin.....	12	12	..	..	12	..	11	10	..	165,528	268,135	4,584	7,509	346	102,612 McK	
Wyoming.....	3	3	3	3	..	..	..	..	..	10,655	10,072	.....	136	.....	583 B	
Totals.....	447	271	176	145	277	22	233	168	219	214	155	6,502,925	7,104,779	13,969	36,274	601,854 McK

Total popular vote, 1896, was 13,923,102. McKinley, 7,104,779; Bryan, 6,502,925; plurality of McKinley 601,854; Levering, 132,007; Palmer, 133,148; Matchett, 36,274; Bentley, 13,969. Popular vote in 1892: Cleveland, 5,556,988; Harrison, 5,176,108; Cleveland plurality, 380,810.

Flag Days.

In every state anniversaries of memorable events should be celebrated by a display of flags over public schools and buildings. The following dates enclose those commonly observed:

Feb. 12, Lincoln's birthday. 1809.
Feb. 22, Washington's birthday. 1732.
Mar. 17, Evacuation of Boston by the British. 1776.
Apr. 2, Jefferson's birthday. 1743.
Apr. 9, Lee's surrender. 1865.
Apr. 19, Battle of Lexington. 1775.
May 23, Foundation of Jamestown, Virginia. 1607.

May 30, Memorial day.
June 14, United States flag adopted. 1777.
June 17, Battle of Bunker Hill. 1775.
July 4, Declaration of Independence. 1776.
Sept. 5, First continental congress. 1774.
Sept. 17, United States constitution adopted. 1787.
Oct. 17, Surrender of Burgoyne at Saratoga. 1777.
Oct. 19, Surrender of Cornwallis at Yorktown. 1781.
Oct. 21, Discovery of America by Columbus. 1492.
Nov. 26, Evacuation of New York by the British. 1783.
Dec. 16, Boston tea party. 1773.
Dec. 21, Landing of the Pilgrims at Plymouth. 1620.

Flag Days. Continued.

Also the days of the state and city elections, the inauguration of the president of the United States and the governor of the state, the anniversary of the organization of the city or town, and the opening day of each school term.

Territories in 1896.

Population and tax valuation, according to the governors' estimates.

TERRITORY.	Population.	Tax Valuation.
Arizona.....	101,240	\$28,047,176.40
New Mexico...	224,562	40,518,037.81
Oklahoma.....	275,587	24,815,711.36

Fish Stations.

Hundreds of millions of eggs, from thirty species of fish, are distributed yearly by the U. S. Fish Commission at Washington, D. C. Following is a list of the hatching stations in various parts of the country: Green Lake and Craig Brook, Me.; St. Johnsbury, Vt.; Gloucester and Woodsholl, Mass.; Steamer Fish Hawk, Delaware River; Battery Island, Md.; Fish Ponds, Washington, and Central Station, Washington, D. C.; Bryan Point, Md.; Wytheville, Va.; Put in Bay, Ohio; Northville and Alpena, Mich.; Duluth, Minn.; Quincy, Ill.; Neosho, Mo.; Leadville, Colo.; Baird, Fort Gaston and Korb, Cal.; Clackamas, Oregon.

Presidents of the United States.

Year of Qualification.	Name.	Where From.	Term of Office.
1789	Geo. Washington,	Va.	8 years.
1797	John Adams.....	Mass.	4 years.
1801	Thomas Jefferson	Va.	8 years.
1809	James Madison ..	Va.	8 years.
1817	James Monroe....	Va.	8 years.
1825	John Q. Adams....	Mass.	4 years.
1829	Andrew Jackson.	Tenn	8 years.
1837	Martin VanBuren	N. Y.	4 years.
1841	W. H. Harrison...	Ohio.	1 month.
1841	John Tyler.....	Va.	3 yrs. 11 mos.
1845	James Knox Polk	Tenn	4 years.
1849	Zachary Taylor...	La.	1 yr. 4 mo. 5 d.
1850	Millard Fillmore.	N. Y.	2 y. 7 m. 26 d.
1853	Franklin Pierce..	N. H.	4 years.
1857	James Buchanan.	Penn	4 years.
1861	A. Lincoln.....	Ill.	4 y. 1m. 10 d.
1865	Andrew Johnson.	Tenn	3 y. 10 m. 20 d.
1869	Ulysses S. Grant.	Ill.	8 years.
1877	R. B. Hayes.....	Ohio	4 years.
1881	Jas. A. Garfield...	Ohio	6 mos. 15 d.
1881	Chester A. Arthur	N. Y.	3 y. 5 m. 15 d.
1885	Grover Cleveland	N. Y.	4 years.
1889	Benj. Harrison...	Ind.	4 years.
1893	Grover Cleveland	N. Y.	4 years.

State Elections of 1897.

OFFICIAL RETURNS TO DECEMBER 20.

Iowa.

VOTE OF THE STATE SINCE 1892.

	Dem.	Rep.	Pop.	Pro.
1892 Pres.....	196,367	219,795	20,595	6,402
1893 Gov.....	174,879	207,089	23,888	10,332
1894 Sec. State	149,980	229,376	34,907	7,457
1895 Gov.....	149,433	208,689	32,118	11,052

	D. & Pop.	N. D.
1896 Sec. State	224,812	288,715
1896 Pres.....	223,741	289,293

STATE OFFICERS ELECTED NOV. 2, 1897.
Governor, Leslie M. Shaw; Lieutenant

Governor, J. C. Milliman; Judge of the Supreme Court, Chas. M. Waterman; Supt. of Public Instruction, Richard C. Barrett; Railroad Commissioner, Chas. L. Davidson.

LEGISLATURE FOR 1898.

	Sen.	House.	Jt. Bal.
Rep.,	39	62	101
Dem.,	11	38	49
Rep. Maj.,	28	24	62

Maryland.

The State Legislature for 1898 is Republican by a majority of 14. The other state elections resulted as follows:

COMPTROLLER.

Phillips Lee Goldsborough, Rep., 121,173; Thomas A. Smith, Dem., 114,064; James W. Frizzell, Pro., 6,096; William Whipkey, S. L., 508.

CLERK OF THE COURT OF APPEALS.

Allen Rutherford, Rep., 120,581; John Frank Ford, Dem., 114,571; Richard T. Turner, Jr., Pro., 5,965.

CONSTITUTIONAL AMENDMENT.

For Constitutional Amendment, 15,875.
Against Constitutional Amendment, 84,391.

Associate Judges.

	Sec.	Rep.	Dem.	Sec.	Pro
Sec. Jud. Circuit	10,823	10,929	12,234	12,094	
Fifth " "			9,898		111
Seventh " "	8,043	7,926	7,117	7,203	

In the second judicial circuit, James A. Pierce, Dem., was elected Chief judge with 12,058 votes against G. M. Russum, Rep., 11,132 votes. In Baltimore, Chas E. Phelps on all tickets received 103,174 votes and was elected judge of the supreme bench. George M. Sharp, Rep., was chosen additional judge of the supreme bench with 54,475 against J. P. Gorter, Dem., 47,320 votes.

VOTE OF THE STATE SINCE 1892.

	Dem.	Rep.	Pop.	Pro.
1892. President,	113,866	92,736	796	5,877
1893. Comptrol,	98,806	79,954		7,586
1895. Governor,	106,169	124,936	989	7,719
			N. D.	
1896. President,	104,735	136,959	2,507	5,918

Massachusetts.

Election, Nov. 2, '97. Official returns.

FOR GOVERNOR.

Candidates.	Votes.
Roger Wolcott, Rep.,	165,095
George Fred Williams, Dem.,	79,552
William Everett, Dem. Nat'l.,	13,879
Thomas C. Brophy, Soc. Labor.,	6,301
John Bascom, Pro.,	4,948
All others,	20

THE VOTE FOR GOVERNOR SINCE 1892.

	Dem.	Rep.	Pop.	Pro.	D'm-P'p	N.D.
1892	186,377	183,843	1,976	7,067		
1893	156,916	192,613	4,885	8,556		
1894	123,930	189,307	9,037	9,965		
1895	121,599	186,280	7,786	9,170		
1896	258,204	4,492	103,662	14,164		

FOR REPRESENTATIVE IN 55TH CONGRESS.

First District.

George P. Lawrence, Rep.,	11,889
Roger P. Donohue, Dem.,	7,573
George D. Crittenden, Pro.,	820
Scattering,	3

For Congressional Elections of '96 and '94, see Page 345.

STATE LEGISLATURE FOR 1898.

	Senate	House	Jt. bal.
Republican,	33	167	200
Democrat,	8	49	57
Independent,		5	5
Rep. Maj.	25	113	138

STATE GOVERNMENT FOR 1898 (ALL REP.).

Governor, Roger Wolcott of Boston; Lieut. Gov., W. Murray Crane of Dalton; Secretary, Wm. M. Olin of Boston; Treasurer and Receiver, General Edward P. Shaw of Newburyport; Auditor, John W. Kimball of Fitchburg; Attorney General, Hosea M. Knowlton of New Bedford; Executive Councillors, N. F. Ryder, Benj. S. Lovell, Geo. N. Swallow, John H. Sullivan, H. H. Atherton, E. H. Shaw, A. H. Joslin, Wm. B. Plunkett; Secretary of the Board of Education, Frank A. Hill; Secretary of the Board of Agriculture, Wm. R. Sessions; Insurance Commissioner, Geo. S. Merrill.

Nebraska.

Abstract of votes cast at the general election held in Nebraska, November 2, 1897, for Judges of the Supreme Court, Regents of the University, and Judge of the Twelfth Judicial District. Compiled by W. F. Porter, Secretary of State.

SUPREME JUDGE.

Scattering, 18; Zara A. Wilson, n. l., 82; Warren Switzler, n. d., 718; D. M. Strong, pro., 1625; J. J. Sullivan, fusion, 102,828; Alfred M. Post, rep., 89,009.

REGENTS STATE UNIVERSITY.

Scattering, 109; J. C. Crawford, n. d., 25; Rufus C. Bentley, n. l., 82; J. Leas, n. d., 632; J. Sterling Morton, n. d., 1309; D. L. Whitney, pro., 1612; Mrs. Isabella Spurlock, p., 1755; George F. Kenower, fus., 97,962; E. Von Forell, fus., 98,741; John N. Dryden, rep., 88,696; Charles W. Kaley, rep., 89,863.

JUDGE 12TH JUDICIAL DISTRICT.

Scattering, 5; Homer M. Sullivan, fus., 6454; William Gaslin, rep., 4620.
Total vote, 200,647.

VOTE OF THE STATE SINCE 1892.

	Dem.	Rep.	Pop.	Pro.
1892. President,	24,943	87,213	83,134	4,902
	Dem.-Pop.	Rep.	Sil.	Dem.
1894. Governor,	97,815	94,613	6,985	
	Dem.	Sil.	D. Rep.	Pop. Pro.
1895. Sup. Ct.,	18,638	10,214	79,516	70,578 4,344
	Dem.-Pop	Rep.	N.D.	Pro.
1896. President,	115,880	102,304	2,885	1,193

VOTE FOR GOVERNOR, 1896.

The vote for Governor in 1896 was: Silas A. Holcomb, Dem.-Pop., 116,415; J. H. MacColl, Rep., 94,723; R. S. Bibb, Nat. Dem., 3,557; Joel Warner, Pro., 1,560. Holcomb's plurality, 21,692.

New Jersey.

ELECTION RETURNS, 1897.

Average vote by counties for members of the general assembly.

	Rep.	Dem.	Pro.
Atlantic.....	2674	2173	305
Bergen.....	5779	4987	162
Burlington.....	6439	5424	376
Camden.....	7959	4685	633
Cape May.....	1687	1202	149
Cumberland.....	3349	2586	687
Essex.....	24807	17589	852
Gloucester.....	3691	2283	278
Hudson.....	14337	23198	328
Hunterdon.....	3110	4231	423
Mercer.....	9690	7241	559
Middlesex.....	6289	6676	286
Monmouth.....	5982	8928	458
Morris.....	5499	4628	519
Ocean.....	1729	939	156

	Rep.	Dem.	Pro.
Passaic.....	10247	9738	296
Salem.....	2918	2727	336
Somerset.....	3139	2295	211
Sussex.....	2478	2918	174
Union.....	7976	5739	343
Warren.....	1998	2729	512
	131777	122916	8043
Plurality.....	8861		
Total number of names on poll books.....			268897
Total socialist labor vote.....			4360

VOTE OF THE STATE SINCE 1892.

	D.	R.	S. L.	P.
1892 President,	171,042	156,068	1,337	8,131
1896 President,	133,675	221,367	*6,373	5,614
* Nat. dem.				

Ohio.

OFFICIAL VOTE.

Parties.	1897	1896	1895
Rep.....	429,816	525,991	427,141
Dem.....	401,715	474,882	334,579
Pop.....	6,254	2,615	52,675
Pro.....	7,558	7,784	21,265
G. Dem....	1,661	1,858	
Soc. Lab...	2,242	1,167	1,867

The election resulted in the re-election of Gov. A. S. Bushnell. The state legislature went Republican by a majority sufficient, it was supposed, to re-elect Hon. M. A. Hanna to the United States senate.

OFFICERS ELECTED NOV. 2, 1897.

Republican—Governor, Asa S. Bush-

nell; lieutenant governor, Asabel W. Jones; attorney general, Frank Monnett; state treasurer, Samuel Campbell; supreme judge, Jacob F. Burket; member board of public works, Charles H. Goddard; school commissioner, L. D. Bonebrake.

NEW YORK.

The unofficial vote for mayor of Greater New York follows:

Tammany Dem., Van Wyck,	255,180
Citizens, Low,	149,873
Rep., Tracy,	101,833
Reform, George,	20,386
Gleason,	581

Better little with content, than much with contention.

Pennsylvania.

Several state officials were elected Nov. 2, as follows:

FOR TREASURER.

J. S. Beacom, Rep., 372,448; M. E. Brown, Dem., 242,731; Silas C. Swallow, Pro., 118,969; W. H. Thomas, S. L., 5,152; Amos Steel-smith, Lib., 630; W. R. Thompson, Ind., 15,135.

FOR AUDITOR GENERAL.

L. G. McCauley, Rep., 412,652; W. E. Rit-ter, Dem., 268,341; W. W. Lathrope, Pro., 58,876; J. M. Barnes, S. L., 5,048; J. C. Ho-gan, Lib., 842.

PRESENT STATE GOVERNMENT.

Governor, Daniel H. Hastings; lieuten-ant governor, Walter Lyon; secretary of

the commonwealth, Frank Reeder; treas-urer, Jas. S. Beacom; auditor-general, Levi S. McCauley; adjutant-general, Thomas J. Stewart; attorney-general, Henry C. Mc-Cormick; superintendent of public in-struction, N. C. Schaeffer; insurance com-missioner, James H. Lambert; commis-sioner of banking, B. F. Gilkeson—all re-publicans.

VOTE OF THE STATE SINCE 1892.

	Dem.	Rep.	Pop.	Pro.
1892. Pres.,	452,264	516,011	8,714	25,123
1893. Treas.,	307,102	442,248	6,979	21,358
1894. Gov.,	333,404	574,801	19,484	23,443
1895. Treas.,	282,481	456,745	7,802	20,779
			N. D.	
1896. Pres.,	433,228	728,300	11,000	19,274

Rhode Island.

VOTE FOR GOVERNOR, APRIL 7, 1897.

Counties.	F. E. Burton. Soc. Labor.	D. T. Church. Dem.	Elisha Dyer. Rep.	John H. Larry Nat'l Liberty.	T. H. Peabody Pro.
Bristol.....	6	317	730	2	46
Kent.....	42	556	1,737	11	164
Newport....	59	1,429	2,327	7	121
Providence	1,229	10,635	17,463	323	1,119
Washi'gton	50	738	2,052	14	646
Total,	1,386	13,675	24,309	357	2,096

In 1896 the vote for governor was: Rep. 28,472; Dem. 17,061; Pro. 2,950.

LEGISLATURE 1897-1898.

	Senate	House	Jt. bal.
Republican,	33	54	87
Democratic,	4	14	18
Independent,		1	1

Senate House Jt. bal.

Gold Democrat,		1	1
Rep. & good govt.		1	1
Dem. " " "		1	1
Rep. Majority,	29	36	65

Fifty-fifth Congress, 1897-1899. Election, April 7, 1897. First District.

Melville Bull, Rep.,	17,378
George T. Brown, Dem.,	8,542
James A. Williams, Pro.,	684
George A. Ballard, Soc. Lab.,	664
	-27,268

Plurality for Mr Bull, 8,836.

Second District.

Adin B. Capron, Rep.,	16,612
Lucius F. C. Garvin, Dem.,	8,088
Henry B. Metcalf, Pro.	1,207
James Jefferson, Soc. Lab.,	254
	-26,161

Plurality for Mr. Capron, 8,524.

Value of Metals.

Reckoned in Gold per Pound, Avoirdupois.

Vanadium, cryst. fused.....	\$4,792.40	Barium, electrolytic.....	924.12
Rubidium, wire.....	3,261.60	Thallium.....	738.39
Calcium, electrolytic.....	2,466.20	Osmium.....	652.32
Tantalum, pure.....	2,446.20	Palladium.....	498.30
Cerium, fused globules.....	2,446.20	Iridium.....	466.59
Lithium, globules.....	2,228.76	Urarium.....	434.88
Lithium, wire.....	2,935.44	Gold.....	299.72
Erbium, fused.....	1,671.57	Titanium, fused.....	239.80
Didgmium, fused.....	1,630.08	Tellurium, fused.....	196.20
Strontium, electrolytic.....	1,576.44	Chromium, fused.....	196.20
Indium, pure.....	1,522.08	Platinum, fused.....	122.32
Ruthenium, pure.....	1,304.64	Manganese, fused.....	108.71
Columbium, fused.....	1,250.28	Molybdenum.....	54.34
Rhodium.....	1,032.84	Magnesium, wire & tape.....	45.30

A good wife and health is a man's best wealth.

Costs of Borrowing.

There are costs of borrowing on mortgage security besides the rate of interest and the commission that often goes with it in many parts of the country, and these are the recorder's, the conveyancer's, and the title searcher's fees, and, in case of building and loan associations, a fee of from \$4 to \$8 to the valuation committee. For recording a mortgage the recorders of the various states receive different fees, and these fees are commonly determined by the number of words in the instrument. Speaking for all states and nearly all mortgage contracts, the fee for recording ranges from 50 cents to \$2.50. The conveyancer's fee ordinarily ranges from \$1 to \$5. The mortgagee generally requires a search of records before he will loan on the security of a mortgage, and this search, as well as the conveyancer's fee, is paid for by the mortgagor; the recorder's fee should be paid by the mortgagee. The fee for a search varies according to the amount of labor required to make it, the number of transfers to be examined, and with local custom. It rarely costs more than \$25 and generally much less than that, sometimes as low as \$1. Perhaps \$5 may be regarded as the average fee for a search of records throughout the country.

Highest Columns, Domes and Spires.

	Feet.		Feet.
Eiffel Tower, Paris.....	984	Cathedral, Florence.....	384
Monument, Washington.....	555	Cathedral, St. Petersburg.....	363
Pyramid of Cheops, Egypt.....	486	St. Paul's, London.....	366
Strasburg Cathedral.....	486	Cathedral, Seville, Spain.....	360
Cologne Cathedral.....	501	Pyramid of Sakkarah, Egypt.....	356
Antwerp Cathedral.....	476	Hotel Invalides, Paris.....	344
Pyramid of Chephren, Egypt.....	456	Notre Dame, Munich.....	348
Spire, St. Stephens, Vienna.....	465	St. Mark's, Venice.....	328
Chimney, St. Rollox, Glasgow.....	455	Spire, Cathedral, New York.....	325
Spire, Salisbury, England.....	450	Spire, Trinity church, New York.....	284
Dome, St. Peter's, Rome.....	448	Capitol, Washington.....	287
Dome, Utrecht.....	464	Tower, Bologna, Italy.....	272
Cathedral, Milan.....	438	Column, Delhi, Hindoostan.....	262
St. Martin's Landshut.....	411	Notre Dame, Paris.....	224
St. Mary's, Lubeck.....	404	Bunker Hill Monument, U. S.....	221
Cremona, Cathedral.....	398	Spire, Grace church, N. Y.....	216
Musprats chimney, Liverpool.....	416	Spire, St. John's church, N. Y.....	210
Church, Friburg, Ger.....	386	St. Paul's, N. Y.....	200

Extremes of Heat and Cold.

Reckoned on the scale of Fahrenheit.

Fine gold melts	2590°	Heat, cherry red.....	1500°
Fine silver melts	1250	Heat, bright red.....	1860
Copper melts.....	2548	“ red visible by day.....	1077
Wrought iron melts.....	3980	“ white.....	2900
Cast Iron melts	3479	Mercury boils.....	662
Bright red iron in the dark.....	752	Mercury volatilizes	680
Red hot iron in twilight.....	884	Platinum melts.....	3880
Glass melts	2377	Zinc melts.....	740
Air furnace.....	3300	Water boils.....	212
Antimony melts.....	951	Highest natural temperature (Egypt).....	117
Bismuth melts.....	476	Greatest natural cold (below zero)....	62
Cadmium.....	600	Greatest artificial cold (below zero)...	106
Steel.....	2500	Heat of human blood.....	98
Lead.....	504	Snow and salt, equal parts	0
Tin.....	427	Ice melts	32
Common fire.....	790	Water in <i>vacuo</i> boils.....	98
Brass melts	1900	Furnace under steam boiler.....	1100

When the well's dry, we know what water's worth.

FOR THE WHOLE FAMILY.

THE CYCLER AND HUNTER.

— How to Ride and Care for a Bicycle.

Under right conditions it is possible for almost anyone to learn to ride a wheel in from half an hour to an hour. Skill, however, comes only with several weeks of practice. During the first lesson, it is well to have the aid of a friend.

First learn to balance the wheel. Let down the saddle low enough so that the feet nearly touch the ground and do not at first attempt to work the pedals. Let the machine move down a gentle slope and try to keep the balance by turning the steering wheel toward the direction in which the machine is inclined to fall. Sit nearly erect, with the hands resting lightly upon but not gripping the handle bars.

Do not look at the machine or the ground, but look well up in front of you. With the help of a companion's hand to steady the machine

there will usually be no trouble in riding after the learner is able to balance the machine fairly well. Men should mount by placing the foot on the step at the back of the wheel, getting a start by hopping two or three steps with the right foot. Old riders often mount from the pedal. Ladies always mount from the side, first revolving the rear wheel so that the pedal opposite the rider will be ready for action. For a lady learning to ride, mounting is easier from the edge of a curbstone.



MOUNTING AND POSITION.

In dismounting, step from the left pedal a little after its lowest point of revolution, bringing the right leg around the back of the saddle.

The proper method of working the pedal can only be acquired by practice. The ball of the foot rests on the pedal and the muscles of the calf are made to assist those of the thigh in propelling the wheel. All of these muscles must be strengthened by use before endurance or power to climb long hills can be expected. Back pedalling is merely the reverse of forward pedalling and is useful in descending steep hills. The motion may also be checked by use of a brake or by bearing the sole of the foot upon the tire of the forward wheel.

The following is the correct position of the mounted cyclist:

Head erect and chin slightly drawn in; shoulders square to the point; back straight, with body slightly bent forward; arms straight, but not rigid; legs straight by their weight alone; feet parallel to the axis of the cycle, the ball of the foot upon the pedal.



ON THE ROAD.

He that waits upon fortune is never sure of a dinner.

CARE OF CYCLES.

If the machine is wet and muddy, stand it in a dry, warm place. A bicycle, to be kept in good condition, should be wiped off every time after use, otherwise dust and grit are apt to sift into the bearings and wear them down. The plated parts must never be so neglected that they begin to rust, nor must mud be allowed to cake on the enamel, for in removing it you will surely leave a few scratches. Beware of a superfluity of oil. A well-kept bicycle needs to be oiled only at the end of every 100 miles. A faint squeak will generally tell you when an oiling is necessary. There are seven parts which need oil: Front axle, rear axle, crank axle, both pedals, the head and the chain, and oil is applied to these at about fifteen points exclusive of the chain. Many riders have trouble with the chain, which should be occasionally cleaned by soaking for some minutes in kerosene, then oiled at each link. Chain lubricant or graphite should be frequently rubbed upon the running side. Keep the inside of the links clean and moist and the bearing surface clean and dry. Chainless cycles will give less trouble from dirt and dust.

At the close of the season, take apart, clean, oil and adjust the machine and put it in a dry place.

USEFUL HINTS.

To clean a bicycle lamp: First wipe the surface with a pad of cotton waste and then cover the pad with a piece of cotton velvet sprinkled with fine rouge, which will give the glass a brilliant polish.

A punctured tire may be temporarily repaired while on the road by patching the hole with the prepared rubber ribbon sold in rolls. Smear it with rubber solution and bind it on tightly with twine. More lasting repairs can be made for single tube tires by the use of the tack-shaped rubber plugs and the rubber solution.

Leaks in tires may be located by placing the suspected part under water and watching for air bubbles.

Tires should be kept moderately full of air, keeping the rear tire the more tensely inflated.

ON THE ROAD.

A bicycle has the same right as a carriage as to right of way and on the other hand cycles have no right to be used on sidewalks or to pass other vehicles on the wrong side of the road.

The rule, "keep to the right," applies to all cases except when vehicles meet at right angles at cross roads; then each party is merely to use due care to avoid collision. Also when one cycle overtakes another the rear one should pass the forward one on the left.

When two persons are traveling in the same direction, the leading traveler is obliged to turn out, unless there is already room at either side. The law of the road applies to both public and private ways.

A cyclist can recover damages for injury caused by defective roads, provided he used due care in traveling thereon.

TO FIND SPEED AND GEAR OF A BICYCLE.

To find the speed per hour when traveling with a bicycle of any gear, the following table is useful, convenient, and very simple. The number of revolutions of the crank made in the number of seconds

The ant says nothing, but she preaches well.

indicated in the seconds column gives the speed per hour, correct within a fraction of a mile. For instance, if a rider with a 68-gear wheel swings the crank thirteen times in the twelve seconds, he is wheeling at the rate of thirteen miles per hour:

GEAR.	Seconds.	GEAR.	Seconds.	GEAR.	Seconds.	GEAR.	Seconds.
50	9	64	11	76	14	88	16
52	9	66	12	78	14	90	16
54	10	68	12	80	14	92	16
56	10	70	13	82	14	94	17
58	10	72	13	84	15	96	17
60	11	74	13	86	15	98	18
62	11						

TO FIND THE GEAR.

The "gear" of a bicycle is that application of chain and sprockets by which the speed of the rear wheel is increased so as to make it equal to a wheel of larger diameter. Thus, to say a wheel is "geared 60" means that the rear wheel is made equivalent to a wheel sixty inches in diameter without gear. To find the gear: Divide the number of teeth in the forward sprocket by the number in the smaller sprocket and multiply the quotient by the diameter in inches of the rear driving wheel.

To find the distance gone over at each revolution of the pedal, multiply the gear by 3.14, obtaining the result in inches. Thus a wheel geared to $59\frac{1}{2}$ makes 186.83 in or 15.57 feet at each complete turn of the pedal. The higher the gear, the greater the speed, and the greater the difficulty on hill climbing.

POWER CYCLES.

The application of additional motor power to the bicycle is a promising line of development. Most of the inventions rely upon gasoline or other petroleum product as the source of power, others have electric storage batteries, while a Kentucky inventor has introduced successfully a bicycle motor operated by explosions of small quantities of gunpowder. Motor bicycles can be driven partly by foot power if desired, or the motor can be used chiefly for aid in ascending steep grades. A motor will, it is asserted, drive a wheel nearly 100 miles with one gallon of oil.

BICYCLES FOR FARMERS.

In certain sections of the country, notably the middle west and the irrigated district, there is a manifest tendency to concentrate farm dwellings in villages. Where good roads exist it is possible for the farmer to live in town and still operate his farm. The bicycle will no doubt assist this tendency by providing quick and convenient transportation for the farmer and his hired help, between town and farm.

THE CHAINLESS BICYCLE.

Much is expected the present year from new forms of the chainless bicycle. Wheelmen and the cycling press seem to agree that a perfect chainless wheel will be in some ways better than the ordinary chain

Nor eye in a letter, nor hand in a purse, nor ear in the secret of another.

and sprocket type, but there is said to be need of even greater nicety of workmanship than with the chain machine.

The bevel-gear, chainless wheel will have a shaft, two bevel wheels and two extra sets of ball bearings. Hence there is no actual gain in simplicity and it is likely that on dustless roads, under ideal conditions, the chain gear might run more easily than the other. But the bevel gears being enclosed in a dust-proof case, the bevel-gear wheel will be kept clean and hence, in practical use on the road, perhaps will prove more serviceable. Still, the ease of running and durability of the new style has yet to be demonstrated in practical service. One point of superiority, concerning which there is apparently no doubt, is the neat and compact appearance of the chainless wheel.

American bicycles have proved popular in foreign markets, being lighter than the standard English makes and of equal quality. The export trade to Mexico, South America and Australia is increasing rapidly, while even in England and France the American wheels have found a profitable market.

Shotguns and Rifles.

CHOOSING A GUN—For all-round shooting the most approved gun is a double breech-loading shotgun, in detail about as follows: The bore 12, the barrels 30 inch, weight 7 lbs, one barrel choke-bored.

A gun of this sort should be charged with 3 to 3½ drams of black powder and 1½ to 1¾ oz of shot. Number six or seven shot is best for ordinary small game. Shotguns of 12 bore may be used for game as large as deer, loading with buckshot, and will even shoot bullets with fair accuracy up to fifty yards. Guns, one barrel for shot and the other rifled, are liked by some. Usually a single rifle and a double shotgun is to be preferred to any combination of the two. In the hand of a skillful gunner, a weapon of smaller bore than twelve will do good service, especially with small game, and small bore weapons are lighter and particularly suitable for women. Large bore guns up to eight bore are best for long range and for wild fowl shooting.

CARE OF A GUN—A gun should be kept in a dry place. It must not be put away at full cock. Dust is very injurious. After a day's shooting, guns should be wiped dry. To clean the barrels, use the cleaning rod with tow or cloth and oil. Never half clean the barrels. Some gunners use soap and hot water, followed by clear hot water before applying oil. Rust or clogged oil may be removed with kerosene. To remove lead coated on the inside of the barrels, roll a little quicksilver up and down the barrels.

To remove rust from inside or outside a barrel, scald the barrels, wipe dry and then oil. Never use oil containing salt. A little linseed oil may be rubbed upon the stock. There is danger of using too much oil on the mechanism, thus clogging the working of the gun when the oil gets gummy.

Shooting Power of Different Bores.

Gun (cylinder bore. No. 6 shot).			Gun (cylinder bore. No. 6 shot).		
BORE.	Yards Range.	Shot in 3-inch Circle.	Gun (Choke bore).		
12	40	130	12	40	200
16	40	115	16	40	175
20		95	20	40	165

Open Season for Game.

Between the dates given, game and fish may be taken as indicated by the laws in the respective States. The table is corrected to July, 1897.

STATES.	Deer, Elk, Antelope, Mountain Sheep, Caribou.	Turkey.	Ducks. Wild Fowl.	Partridge, Grouse, Prairie Chicken	Quail.	Woodcock.	Trout, Land Locked Salmon Lake Trout.
Arizona,	Aug. 1, Dec. 15	Oct. 15, Apr. 30	Oct. 1, Feb. 28	Sept. 1, Mar. 31	Oct. 1, Feb. 28		June 1, Aug. 31
Arkansas,	Aug. 1, Jan. 31	Sept. 1, Apr. 30	Sept. 1, Apr. 30	Oct. 1, Feb. 28	Sept. 1, Feb. 15		July 1, Dec. 31
Cal.,	July 15, Oct. 15	Aug. 15, Oct. 31	Sept. 1, Apr. 30	Aug. 15, Oct. 31	Protected		June 1, Nov. 1
Colorado,	Sept. 1, Oct. 15		Oct. 1, Apr. 15	Dec. 1, Dec. 31	Oct. 15, Dec. 15	Oct. 1, Dec. 31	Apr. 1, June 15
Conn.,	Protected		Sept. 1, Mar. 31	Sept. 1, Jan. 31	Dec. 1, Dec. 31	July 1, Dec. 31	
Del.,				Nov. 1, Mar. 15	Nov. 1, Jan. 31	July 1, Jan. 31	
Dist. Col.,	+Oct.	Nov. 1, Mar. 15		Oct. 1, Mar. 15	Nov. 1, Mar. 15		
Florida,	Oct. 1, Dec. 31	Nov. 1, Mar. 31		Nov. 1, Mar. 31			
Georgia,	Sept. 1, Nov. 30		Aug. 15, Mar. 15	Ang. 1, Dec. 15	Oct. 1, Dec. 1		May 15, Nov. 1
Idaho,	Sept. 1, Jan. 15	Sept. 1, Jan. 15	Sept. 15, Apr. 15	Sept. 15, Oct. 31	Oct. 1, Nov. 30	July 15, Sept. 15	Mar. 1, Nov. 30
Ill.,	Oct. 1, Dec. 31	Nov. 1, Jan. 31	Sept. 1, Apr. 15	Sept. 1, Jan. 31	Nov. 10, Dec. 31	July 10, Dec. 31	June 15, Apr. 1
Ind.,	Sept. 1, Dec. 31	Oct. 1, Dec. 31	Aug. 15, Apr. 30	Oct. 1, Dec. 31	Oct. 1, Dec. 31	June 20, Jan. 31	Apr. 1, Oct. 31
Iowa,	Sept. 1, Feb. 20	Sept. 1, Jan. 31	Aug. 15, Mar. 31	Nov. 15, Dec. 31	Nov. 15, Dec. 31		
Kentucky,	Oct. 1, Feb. 20	Oct. 1, Apr. 15		Oct. 1, Mar. 31	Oct. 1, Mar. 31		
Louis'a,	Oct. 1, Dec. 31		Sept. 1, Apr. 30	Sept. 20, Nov. 30	Oct. 1, Dec. 1	Sept. 1, Nov. 30	May 1, Sept. 30
Maine,			Nov. 1, Mar. 31	Nov. 1, Dec. 24	Oct. 1, Dec. 3	June 15, Dec. 24	Apr. 1, Aug. 15
M'd,			Sept. 1, Apr. 15	Sept. 15, Dec. 31	Oct. 15, Dec. 3	Sept. 15, Dec. 31	Apr. 1, Sept. 1
Mass.,	Protected		Sept. 1, Jan. 15	Oct. 1, Dec. 1	Protected	Oct. 1, Dec. 1	May 1, Sept. 1
Mich.,	Nov. 8, Nov. 30		Sept. 1, Apr. 15	Sept. 1, Dec. 31	Oct. 1, Nov. 30	Sept. 1, Oct. 31	May 1, Aug. 31
Minn.,	Nov. 1, Nov. 20		Oct. 1, Apr. 15	Nov. 1, Dec. 31	Nov. 1, Dec. 31	Aug. 1, Dec. 31	
Missouri,	Oct. 1, Dec. 31	Nov. 1, Dec. 31	Sept. 1, Apr. 30	Aug. 15, Dec. 15	Oct. 1, Dec. 31		July 1, Apr. 31
Mont.,	Sept. 15, Nov. 15			Sept. 1, Dec. 31	Oct. 1, Dec. 31	Oct. 1, Dec. 31	
Neb.,	Oct. 1, Dec. 31	Oct. 1, Dec. 31	Sept. 15, Mar. 31	Sept. 15, Mar. 15	Sept. 15, Mar. 15	Sept. 15, Mar. 15	June 1, Oct. 1
Nev.,	Sept. 1, Dec. 31		Sept. 15, Dec. 31	Sept. 15, Dec. 31	Sept. 15, Dec. 31	Oct. 15, Dec. 31	Apr. 15, Aug. 31
N. H.,	Sept. 15, Nov. 15		Oct. 1, Apr. 30	Oct. 1, Dec. 10	Nov. 10, Dec. 31	Nov. 1, Dec. 31	Apr. 1, July 15
N. J.,	Oct. 25, Nov. 5			Sept. 1, Mar. 1	Sept. 1, Feb. 28	Nov. 1, Dec. 31	June 1, Oct. 31
N. M.,	Sept. 1, Dec. 1	Sept. 1, Feb. 28	Sept. 1, Apr. 30	Nov. 1, Dec. 31	Nov. 1, Dec. 31	Nov. 1, Dec. 31	Apr. 1, Sept. 1
N. Y.,	Aug. 15, Nov. 15	Nov. 1, Mar. 15	Nov. 10, Mar. 10	Nov. 1, Dec. 31	Nov. 1, Mar. 15		Dec. 30, Oct. 15
N. C.,	Oct. 1, Dec. 31		Sept. 1, Nov. 30	Sept. 1, Nov. 30	Nov. 1, Mar. 15	Sept. 1, Nov. 30	
N. Dk.,	After 1900	Oct. 1, Dec. 15	Sept. 1, Apr. 10	Sept. 1, Dec. 15	Nov. 10, Dec. 15	July 4, Nov. 15	Mar. 15, Sept. 14
Ohio,	Aug. 1, Nov. 30		Sept. 1, Mar. 15	Sept. 1, Nov. 30	Sept. 1, Nov. 30	Sept. 1, Nov. 30	Apr. 1, Nov. 1
Oregon,	Nov. 1, Nov. 30	Oct. 15, Dec. 15	Sept. 1, Apr. 30	Oct. 15, Dec. 15	Oct. 15, Dec. 15	July 4, Dec. 15	Apr. 15, July 15
Penn.,			Sept. 1, Jan. 31	Sept. 1, Dec. 31	Oct. 1, Dec. 31	Sept. 1, Dec. 31	Apr. 1, July 15
R. I.,		Nov. 1, Mar. 31		Nov. 1, Mar. 31	Nov. 1, Mar. 31	Nov. 1, Mar. 31	
So. Car.,	Sept. 1, Jan. 31		Sept. 1, May 15	Sept. 1, Dec. 31	After Jan. 19, '98		May 1, Sept. 30
S. D.,	Oct. 1, Dec. 1	Oct. 1, Apr. 30		Nov. 1, Dec. 28	Nov. 1, Feb. 28		
Tenn.,	Aug. 1, Dec. 31	Sept. 1, Mar. 31		Aug. 1, Jan. 31	Oct. 1, Mar. 31		
Tex.,	Dec. 1, Dec. 31		Oct. 1, Feb. 15	Sept. 1, Mar. 15	Sept. 1, Mch. 15		July 1, Jan. 15
Utah,	Sept. 1, Oct. 31		Sept. 1, Dec. 31	Sept. 15, Dec. 31	Sept. 1, Dec. 31	Sept. 15, Dec. 31	May 1, Aug. 31
Vermont,	Oct. 1, Oct. 31						

Virginia,	Aug. 15, Dec. 31	Sept. 15, Jan. 31	Sept. 1, Apr. 30	Oct. 15, Dec. 31	Oct. 15, Dec. 31	Nov. 1, Mar. 31	Apr. 1, Sept. 15
Wash.,	Nov. 1, Nov. 30		Aug. 1, Aug. 31	Aug. 15, Nov. 30			Apr. 1, Oct. 31
W. Va.,	After 1901	Sept. 15, Dec. 31	Oct. 1, Mar. 31	Nov. 1, Dec. 1	Nov. 1, Dec. 30	July 1, Sept. 15	Apr. 1, Oct. 31
Wis.,	Nov. 1, Nov. 20		Sept. 1, Nov. 30	Sept. 1, Nov. 30	Protected	Sept. 1, Nov. 30	Apr. 15, Aug. 31
†Wy.,	Sept. 1, Nov. 30		Sept. 1, Apr. 30	Aug. 15, Dec. 1			May 1, Sept. 30

†Buffalo protected. ‡Moose and caribou, etc., protected.

In Mississippi and Alaska there are no game laws. In Alabama, the only game law is for protection of pheasants until June 1, 1901. Kansas protects grouse, prairie chicken and quail, except during October and November. Many States have introduced pheasants of various kinds, and the killing of these is forbidden. In Florida, Maryland, New York, South Carolina, Tennessee, New Jersey and Virginia, the open seasons vary somewhat for the different counties. Almost all the States protect song birds at all seasons. In Yellowstone Park hunting is prohibited. Possession, sale, or transportation is unlawful during the close season. Nest robbing, except of birds of prey, is forbidden in most States, also night shooting of game and capture of fish by other means than by hook and line. Some States forbid snaring of food game, birds and animals. Antelopes are protected for five years in Texas. For non-resident sportsmen a license is required in some States.

Open Game Seasons in Canada.

	Deer, elk, moose caribou, antelope, mountain sheep, mountain goat.	Wild Fowl.	Grouse, Partridge.	Woodcock, Snipe.	Pickarel.	Salmon.	Trout.
British Col.,	* Aug. 1, Jan. 1	Aug. 20, Mar. 1	Aug. 20, Feb. 1†	Sept. 20, Nov. 30			
New Brun.,	* Sept. 15, Dec. 31	Sept. 1, May 15	Sept. 20, Nov. 30	Sept. 20, Nov. 30		Mar. 1, Aug. 15	May 2, Sept. 14
Manitoba,	Pro. to Oct. 15, '98	Sept. 1, May 1	Sept. 15, Nov. 30	Aug. 1, Jan. 1	May 16, Apr. 14	Jan. 1, Oct. 1	Jan. 1, Oct. 1
Newfoundl'd,	c Nov. 10, Feb. 1	Aug. 20, Jan. 12	Aug. 20, Jan. 12	Aug. 20, Jan. 12	Feb. 1, Sept. 15	Jan. 15, Sept. 10	Feb. 1, Sept. 15
N. W. T'y,	Oct. 1, Jan. 31	Aug. 23, May 15	Sept. 15, Dec. 15	Sept. 1, Mar. 1	May 16, Apr. 14	May 16, Apr. 14	Jan. 1, Oct. 1
Nov. Sec.,	† Sept. 15, Jan. 15	Sept. 1, Mar. 1	Sept. 15, Dec. 1	Sept. 15, Dec. 15	May 16, Apr. 14	Feb. 1, Aug. 15	Apr. 2, Sept. 30
b Ont.,	d Nov. 1, Nov. 15	Sept. 1, Dec. 15	Sept. 15, Dec. 15	Sept. 15, Dec. 15	May 16, Apr. 14	Dec. 1, Oct. 31	f May 2, Sept. 14
Quebec,	a Oct. 1, Dec. 31	Sept. 1, Apr. 30	Sept. 15, Jan. 31	Sept. 1, Jan. 31	May 16, Apr. 14	Feb. 1, Aug. 15	b May 1, Sept. 30

* Females protected. ‡ Deer and elk protected until 1904. a Caribou, Sept. 1, Jan. 31. b Lake trout, land-locked salmon, Dec. 1, Oct. 15; bass, June 16, April 4. c And July 15, Oct. 7. Moose and elk protected until 1906. d Moose, elk, reindeer and caribou protected to Oct. 25, 1900. † East of Cascades, Sept. 1, Nov. 16. f Bass, June 16, Apr. 14.

Song birds are protected in all the provinces. Fishing through the ice is prohibited for speckled trout. Special permits for hunting and fishing are required for non-residents. Netting, snaring, night shooting, and the like, are generally forbidden. Most provinces limit the number of game or fish to be taken by one person within a specified time. Prince Edward Island has an open season for trout, Dec. 2, Nov. 30.

A high-grade choke bored, 12 bore, 30-inch gun should perform about as follows when charged as indicated:

At 40 yards.			At 60 yards.		
Drams of powder.	Ounce shot.	No. shot in 30-in. circle.	Drams powder.	Ounce shot.	Shot in 30-in. cir.
3 3/4	1 1/8 No. 8	320	3	1 1/8 No. 6	110
3 1/2	1 1/8 No. 6	208	3 1/2	1 1/8 No. 5	89
3 1/4	1 1/4 No. 5	190	3 1/2	1 1/8 No. 4	70
3 1/4	1 1/4 No. 1	105	3 1/4	1 1/4 No. 1	50

A choke bored gun is smaller at the muzzle and prevents the shot from scattering so quickly. To select buck shot which will suit a gun, put a wad in muzzle about half an inch down and put in the shot. Nine pellets to 1 1/8 oz. will give bullets to the layer in a 12-bore gun. Avoid sizes which do not fit fairly well.

Drop of Shot with Pellets of Different Sizes.

Range.	No. 2.	No. 4.	No. 6.	No. 8.
20 yds.	0.6 in.	0.7 in.	0.7 in.	0.8 in.
30 "	1.6 "	1.7 "	1.8 "	2.0 "
40 "	3.3 "	3.6 "	3.9 "	4.5 "
50 "	5.9 "	6.8 "	7.8 "	9.2 "
60 "	10.2 "	12.5 "	15.0 "	20.0 "

Good gun powder should be perfectly uniform in texture, should not have light specks or glittering points. It should not be crushed easily between the fingers or soil paper by mere contact.

Rifle Targets and Score.

In rifle matches the standard target is four by six feet and the count as follows, according to size of bull's-eye :

				Diameter, Inches.
Count	10,	Bull's-eye,	circular	
"	9	"	"	3.36
"	8	"	"	5.54
"	7	"	"	8.00
"	6	"	"	11.00
"	5	"	"	14.80
"	4	"	"	19.68
"	3	"	"	26.00
"	2	"	"	34.22
"	1	"	"	46.00
				4 x 6 ft.

Each ring outside the bull's-eye center counts one less than the bull's-eye.

Flight of Game Birds.

Actual tests of the flight of pigeons show a rate of 12.8 to 16.5 yards per second and from 27 to 33 miles per hour on short flights. Partridges made 12 to 15.7 yards per second. When birds are flying with the wind, something must be allowed. A mile per hour of wind velocity is equal to about 1 1/2 feet per second.

Flight of bird (at 40 miles an hour) during passage of shot.

Sizes of shot and distances flown by bird.

Yards from Gun to Bird	No. 2.	No. 4.	No. 6.	No. 8.
20	3 1/4 ft.	3 1/2 ft.	6 1/2 ft.	3 3/4 ft.
30	5 1/4 "	5 1/2 "	5 3/4 "	6 "
40	7 1/2 "	8 "	8 1/2 "	9 "
50	10 "	11 "	11 1/2 "	13 "
60	13 1/2 "	15 "	16 "	19 "

Sizes of American Drop Shot.

F. N. Sparks, Philadelphia		Tatham Bros. New York.		St. L. Shot Co. St. Louis, Mo.		Selby Co., San Francisco		Chicago Co., Chicago, Ill.		Merchants' Co Baltimore.	
SIZE.	Pel'ts to oz.	SIZE.	Pel'ts to oz.	SIZE.	Pel'ts to oz.	SIZE.	Pel'ts to oz.	SIZE.	Pel's to oz.	SIZE.	Pel'ts to oz.
F.	22	F. F.	24	O. O. O.	29	.....	.....	O. O. O.	27	T. T. T. T.	22
T. T.	36	F.	27	O. O.	32	.....	.....	O. O. O.	33	T. T. T.	26
T.	41	Y. Y.	31	O.	40	.....	.....	O. O.	38	T. T.	30
B. B. B.	48	T.	36	B. B. B.	46	.....	.....	O.	38	T.	34
B. B.	55	B. B. B.	42	B. B.	53	B. B. B.	46	B. B. B.	46	B. B. B.	39
B.	63	B. B.	50	B.	63	B. B.	55	B. B.	53	B. B.	45
1	80	B.	59	.....	.....	B.	68	B.	62	B.	52
2	90	1	71	1	79	1	79	1	75	1	60
3	118	2	86	2	98	2	89	2	92	2	77
4	130	3	106	3	116	3	118	3	118	3	94
5	182	4	132	4	163	4	134	4	146	4	115
6	245	5	168	5	181	5	170	5	172	5	140
7	305	6	218	6	252	6	215	6	246	6	180
8	426	7	291	7	306	7	303	7	323	7	225
9	615	8	399	8	426	8	420	8	434	8	365
10	950	9	568	9	534	9	592	9	596	9	610
11	1,660	10	848	10	981	10	874	10	854	10	1,130
12	3,316	11	1,346	11	1,603	11	1,404	11	1,414	11	2,200
Dust	5,910	12	2,326	12	2,305	12	2,030	12	2,400	12	3,200
										13	12,200

Diligence is mother of good luck.

Game Preserves in the United States.

Yellowstone Park is really the largest American game preserve, and there the animals have become so abundant and tame as to be easily approached by visitors. Scores of smaller game preserves exist, of which some of the more important are these:

	Acres.	Founder.
Blue Mountain Forest, Newport, N. H.....	36,000	Austin Corbin.
Litchfield Park, Adirondacks, N. Y.....	9,000	E. H. Litchfield.
Hehasine Park, " ".....	9,000	Dr. W. Seward Webb.
Adirondack.....	30,000	Adir. Timber and Mineral Co.
Springfield, Mo.....	5,000	St. Louis Park Co.
Delaware Water Gap.....	3,500	C. C. Worthington.
Anticosti Island, Maine.....	40 by 35 miles	M. Menier.
Allamuchy, N. J.....	4,000	R. J. Stuyvesant.
Furlough Lodge, Catskills, N. Y.....	600	Geo. J. Gould.

To Shoot on the Wing.

Aim just forward of the head of the game at a short range, and its own length ahead at a fairly long range, and jerk the muzzle in time with the flight of the object, then fire without stopping the correct sideways movement of the gun and without dwelling a moment on the aim. Pull the trigger with the finger, adding no wrist movement. Keep the eyes open when firing. Study causes of failures and watch older sportsmen.

Flight of Birds.

The flight of wild ducks is estimated at 90 miles per hour, that of the swift at 200 miles, carrier pigeons 38 miles, swallows 60 miles; migratory birds have crossed the Mediterranean at a speed of 120 miles per hour.

Of fifty well-known bicycle manufacturers, it is announced that 14 will in 1898 make bevel gear machines; four will have modified chain styles; nine, inclosed chains; fourteen, either chain or chainless at option of buyer; nine unchanged.

Whale Fisheries in 1897.

Products of the Whale Fisheries taken by American Vessels and Fishermen, brought into the United States—Year ending June 30, 1897.

CUSTOMS DISTRICTS.	Sperm oil.		Other whale oil.		Whalebone, or baleen, split or unsplit.		Ambergris.		Other whale products.	Total.
	Gals.	Dols.	Gals.	Dols.	Lbs.	Dols.	Lbs.	Dols.	Dols.	Dols.
Brunswick, Ga.....	9,000	3,150	.....	.....	.....	.....	.....	.....	.....	3,150
New Bedford, Mass....	292,427	128,169	12,811	6,371	12,300	49,200	2	950	.....	184,690
New York, N. Y.....	20,077	8,026	.....	.....	606	1,800	7	2,400	.....	12,226
San Francisco, Cal....	28,743	11,300	132,233	29,266	206,543	430,581	.....	.....	31,286	502,433
Total.....	350,247	150,645	145,044	35,637	219,449	481,581	9	3,350	31,286	702,499

New Bedford, Mass., is still, as of old, the chief center of sperm whale industry, but a larger amount of other whale oil and whalebone is obtained from the Pacific ocean and brought to San Francisco. Ambergris is the result of a diseased condition of the whale, but is highly valued in perfumery, and is worth much more than its weight in gold.

Admiration is the daughter of ignorance.

GAMES, SPORTS AND ATHLETICS.

National Baseball League Since 1890.

Year.	Club.	Won.	Lost.	Aver.	Champion batter.	Club.	Aver.
1890,	Brookly	86	43	.667	Luby,	Chicago,	.342
1891,	Boston,	87	51	.630	Hamilton,	Philadelphia,	.338
1892, (a)	Boston,	52	22	.703	} Brouthers,	Brooklyn,	.335
1892, (b)	Cleveland,	53	23	.697			
1893,	Boston,	86	44	.662	Stenzel,	Pittsburg,	.409
1894,	Baltimore,	89	39	.695	Duffy,	Boston,	.438
1895,	Baltimore,	87	43	.669	Burkett,	Cleveland,	.423
1896,	Baltimore,	90	39	.698	Burkett,	Cleveland,	.410
1897,	Boston,	93	39	.705	Keeler,	Baltimore,	.432

(a) and (b) represent the first and second divisions of the championship season.

In the official league batting records for 1897, Keeler of Baltimore leads, with a standing of .432 per cent. Hamilton of Boston made the greatest number of runs, 153.

League Baseball.

The season of 1897 closed Oct. 2. The Boston team was formally presented with the championship pennant, Oct. 4.

NATIONAL LEAGUE STANDING FOR 1897.

	Won.	Lost.	Per Cent.
Boston,	93	39	70.5
Baltimore,	90	40	69.2
New York,	83	48	63.4
Cincinnati,	76	56	57.6
Cleveland,	69	62	52.7
Brooklyn,	61	71	46.2
Washington,	61	71	46.2
Pittsburg,	60	71	45.8
Chicago,	59	73	44.7
Philadelphia,	55	77	41.7
Louisville,	52	78	40.0
St. Louis,	29	102	22.1

The Temple cup contest at the close of the season between the two leaders of the National League games, Boston and Baltimore, was won by Boston.

Amateur Athletic Association.

This list includes the Amateur Athletic Union with its allied organizations, having a total of 308,600 members:

	MEMB.
Amateur Athletic Union,	45,000
Amateur Athletic Asso'n of Canada,	5,600
Western Inter-Collegiate Ath. Asso'n,	19,000
Inter-Coll. Asso'n of Amateur Athl's,	30,000
North American Gym. Union,	39,000
Athletic League of Y. M. C. A.,	70,000
League of American Wheelmen,	100,000

Cycling Records.

The mile track record of 1.35 2-5 rests with McDuffie of Boston, and Stocks of London, both of whom achieved the same time. Under special conditions, however, faster time has been made, as follows:

Anderson, behind a locomotive,	1.03
Green, down a mountain side,	1.08
Martin, in Australia,	1.19 1-5
Leonard, in Buffalo, straightaway,	1.35
Johnson, in Buffalo, straightaway,	1.35 2-5

Earl, in Brooklyn,	1.22 1-5
World's competition hour record,	
Stocks,	30 miles 600 yards.
American competition hour record,	
Michael,	31 miles 120 yards.
American against time hour record, Michael,	31 miles 120 yards.

NATIONAL CIRCUIT CYCLING.

The National circuit races from May 14 to Sept. 27, 1897, are summed up as follows: the riders being given in the order of their rank:

	Points Scored
Edward C. Bald,	106
Arthur Gardiner,	59
Tom Cooper,	41
N. Butler,	41
Major Taylor,	38
A. C. Mertens,	37
O. L. Stevens,	35
Earl Kiser,	28
C. R. Newton,	27
F. C. Hoyt,	23

The 100 mile cycling record was broken by Chase, in England, Oct. 29. Time, 4 hours 15 minutes 35 seconds.

New cycling records were made by "Jimmy" Michael, in Chicago, Nov. 13, as follows: Two miles, 4 m. 2 2-5 sec.; four miles, 8 m. 5 3-5 sec.; five miles, 10 m. 3 2-5 sec.; six miles, 12 m. 7 2-5 sec.; seven miles, 14 m. 15 2-5 sec.; eight miles, 16 m. 21 sec.; nine miles, 18 m. 25 4-5 sec.; ten miles, 20 m. 30 4-5 sec.; eleven miles, 22 m. 35 sec.; twelve miles, 24 m. 39 3-5 sec.; twenty-five miles, 52 m. 34 2-5 sec. The previous record for twenty-five miles was 55 m. 12 2-5 sec.

The bicycle coasting contest at Cedar Grove, N. J., Aug. 28, 1897, was won by W. A. Shockley; record, 6,467 feet 1 inch. At Brooklyn, J. E. Whittlesey of N. J., was the winner; record, 3,392 feet 8 1/2 inches.

The one mile amateur championship at the L. A. W. national meet at Phila., Aug. 6-7, was won by C. M. Eitz; time, 2 m. 16 2-5 sec.

A man of courage never wants a weapon.

Horse Racing.

The Championship of Europe for 1897 was decided at Baden, Austria, as follows: Purse \$2800, won by Bravado. Time, three heats, 2.17 3-5, 2.18 2-5, 2.17 3-10.

1.59 1-4.

Star Pointer's great triumph was at Readville, Mass., Aug. 21, when he paced a mile in 1.59 1-4, being the first horse to go below 2.00. Star Pointer opened the season July 5, defeating John R. Gentry and Frank Agan. He defeated Joe Patchen in five races.

John R. Gentry and Robert J., at Glens Falls, N. Y., Oct. 8, made a mile in 2.08, breaking the record for pacing teams.

At Indianapolis, Ind., Sept. 18, Star Pointer beat Joe Patchen, special pacing race, three heats. Time 2.04 3-4, 2.03. 2.01.

English Racing Sires.

In the list of sires whose get have won \$10,000 and over in 1897, the following three head the column:

Am't won.

Kendal, by Bend Or-Windemere,	\$142,165
St. Simon, by Galopin-St. Angela,	111,310
Ayrshire, by Hampton-Atalanta,	82,550

Fast Records.

The drivers and horses that have made best miles are McCleary with Star Pointer, 1.59½; Andrews with John R. Gentry, 2.00½; John Dickerson with Joe Patchen, 2.01¼; Ed. Geers with Robt. J. and Joe Patchen, 2.01½.

The best half mile by a trotter in 1897, was by William Penn, time 1.01¾, at Springfield, Ill., Oct 1.

The \$15,000 Kentucky futurity race for 3-year-olds, Oct. 5, was won by Thorne, best time, 2.13¼. The race for two-year-olds was won by Jane T. Best time 2.08¼.

Champion Athlete.

The all-around amateur athletic championship of the United States was won in 1897 by Ellery H. Clark, of the Boston Athletic Association. Clark is 5 ft 10½ in. tall, weight 170 lbs. Records: Shot, 37 ft. 11½ in.; hammer, 117 ft. 4½ in.; 56-lb weight, 23 ft. 4 in.; high jump, 5 ft. 9½ in.; broad jump, 21 ft.; pole vault, 9 ft. 6 in.; 120 yd. hurdle race, 17 1-5 sec; 100 yd. run, 10 2-5 sec.

Canoeing.

The American Canoe Association race, 1897, resulted as follows. Record made Aug. 17-21:

Pad- Sail- Com- To-
dling. ing. bined. tal.

Geo. B. Douglass,	4	4	3	11
J. R. Stewart,	3	3	4	10
Thos. Hale, Jr.,	0	2	2	4
L. Leroy,	0	1	1	2

He that speaks ill of a mare will buy her.

Yachting.

Summary of the Goelet Cup race at Newport, Aug. 5:

	Corrected time.
Navahoe (sloop),	4' 18.05"
Vigilant (sloop),	4' 22.26"
Colonia (schooner),	4' 32.45"

Swimming.

Championship of the Atlantic Association of the Amateur Athletic Union race at Wayne, Pa., Sept. 18, 1897, 100 yards straightaway. W. B. Kugler, 1st, time, 1 m 22 1-5 sec.; C. H. Kollock, 2d, W. T. Lawless, 3d.

The fastest English amateur half-mile record was made by Jarvis, of Leicester, Sept. 6. Time, 13 m. 2-5 sec.

The Canadian swimming championship races (amateur) at St. Helen's Island, were won by W. D. Lawless, Ottawa, 100 yds. in 1 m. 19 4-5 seconds; diving, E. Erwin, 183 points.

American amateur championship race, July 3d; one mile race, Dr. P. Neuman, 30 m. 24 3-5 sec.

Football Games, 1897.

Oct. 27, New Haven, Ct., Yale 18; Brown 14. Oct. 23, At New London, Ct., Storrs 22. Oct. 30, Annapolis, Md., U. S. Naval Cadets, 4; Penn. State Col., 0. Oct. 30, At Albany, N. Y., Union 10; Rutgers, 0. Oct. 30, Atlanta, Ga., U. of Virginia, 17; U. of Ga., 4. Oct. 30, Grinnell, Ia., Grinnell 12, Ames, 6. Oct. 30, Providence, R. I., U. of Penn. 40, Brown U. 0.

Harvard vs. Yale.

Following is the record of the Harvard-Yale football games since 1883, when the present system of scoring by points was adopted:

1883, Yale 23, Harvard 2; 1884, Yale 52, Harvard 0; 1885, no game; 1886, Yale 29, Harvard 4; 1887, Yale 17, Harvard 8; 1888, forfeited to Yale; 1889, Yale 6, Harvard 0; 1890, Harvard 12, Yale 6; 1891, Yale 10, Harvard 0; 1892, Yale 6, Harvard 0; 1893, Yale 6, Harvard 0; 1894, Yale 12, Harvard 4; 1895, no game; 1896, no game; 1897, Harvard 0, Yale 0.

Cricket.

In the tournament of the Northwest Cricket Association, the Winnipegs were first, Chicago second, and Minnesota third. Winnipeg, representing Canada, won a match from a combination team of each of the other three teams representing the United States.

Tennis.

A tennis match to decide the tennis championship for 1897-8 of Harvard University, was won by E. R. Marvin, previous holder of the championship.

Amusements, Fancies and Mysteries.

The Possibilities of a Stereopticon.

Let not our young folks imagine that the possibilities of the stereopticon have been exhausted. There is nothing of the present day that affords a better opportunity, socially and financially, for young men and maids of every sort of talent than an entertainment with a "magic lantern" as its basis. Of course the old-time stereopticon lectures, in which an audience sat for two or three hours, with a few minutes' intermission in between, listening to a discourse that was interesting enough in itself, but that grew so tiresome to mind and body through lack of variety, are no more. In these days, if you want to hold people's interest and attention (and above all, make them want to "come again"), you must give them as much change and variety as possible, for eye, ear and body.

For instance, think of the possibilities in this simple "Evening in Scotland." What suggestions it must offer to the bright, energetic boy and girl in the way of getting up other sorts of "evenings." The entertainment was at a private house. Tickets were sold by an "agent," who had canvassed the neighborhood. On entering the audience were given a pencil and slip of paper on which to write the name of their favorite Scotch author, and also their favorite poem or story, a summary of which was looked forward to for the close of the entertainment. One corner was partitioned off with a curtain (its use was delightfully explained afterward); over the walls were pinned pictures cut from magazines, poems and short sketches. Draperies of different kinds of plaids hung about. There were some 50 Scotch pictures in the course. The machine was operated by one of our future mechanical engineers (or something of that nature). The would-be young orator described the scenes in an off-hand natural way, using notes as little as possible. About a third way through, the audience had a chance to rise and walk around, and view the sketches on the walls, look over the poems, etc, and to expend a cent or so at the little counter, back of the before-mentioned curtain (now draped aside) for a Scotch sweetmeat or cake, from the white-capped young waitress. Then a little bell rang and a Scotch tableau followed. Once in a while during a famous scene (such as Melrose abbey), a talented girl declaimed some famous lines while the scene was being shown, which was really quite striking. During such a time the "orator" would be seated, taking a well-earned rest. At another intermission a short parlor game was played by the audience, which afforded a pleasant change. At the end of the exercises a summary of the favorite poems and authors was given, which afforded a good deal of interest and amusement. Then a Scotch song was sung by all.

The main trouble with our young folks' entertainments is that they are too long, too much time being given to each exercise, and the audience, while they may good-naturedly stay till the close, do not care to go to one often. Make everything almost galloping short, if need be. Stop everything while the audience are so pleased that they would like more of the same kind—not when they have been satiated. The subjects are limitless, as you will notice if you get a good catalog of sets,

Late children are early orphans.

even to novels and songs. Some sets may prove to have so much of a sameness throughout as to awaken the same kind of emotions. Such a subject should be carefully balanced by something that will awaken different emotions.

A stereopticon entertainment may be stupid and tiresome, or it can be made so delightful that the audience forget the time, and, like *Oliver Twist* under quite different circumstances, crave for more. Such an audience will come again and again. Let our bright, talented young men and women (or those who want to develop into being such) take shares in a stereopticon, join their forces and earn some money for themselves.

Primer of Palmistry.

Divination by lines of the hand is called palmistry or chiromancy. It is a very ancient practice and well known to the ancient Egyptians, Assyrians and Chaldeans. In modern times there are many who take palmistry seriously, while for those who do not, a prediction of character or of future according to the always varying lines of the hand, is an interesting experience. The basis of palmistry is the three large, distinct lines noticeable on the palm; the first distinct nerve at the fingers is the line of the heart, or table line; the second in the middle of the hand, the line of the head or middle natural line, and the third, at the base of the thumb, the line of life. There are other important lines, as indicated by the chart. They form a letter M when the palm is held sideways with muscles relaxed. The slight elevations at the base of the fingers are termed mountains, named after the various planets, from which they are said to receive favorable or unfavorable influence. Palm readers usually study both hands and strike a balance from the

The following directions will aid in the use of the chart.

A long, distinct line of life indicates a long and happy life without any great trouble. A wide pale line means ill health. A short life is designated by a short line of life, while a broken line denotes a serious illness. A double line of life is a very favorable sign.

The table line or line of the heart should be clear, long and of good color, rising at the foot of the index finger and extending nearly across

No gains without pains.



LINES AND MOUNTS OF THE PALM.

the palm. A break in the line indicates a rupture with a loved one. A rough, jagged line denotes inconstancy. A deep red line indicates strong affection, while a broad, pale line means weakness and dissipation. When no branches exist there will be no love affair.

The middle natural line, or line of the head, when clear, continuous and distinct, indicates a good intelligence, while a pale, wide line denotes want of sense and wit. A chain-like line means want of concentration and a vacillating mind. Wounds on the head or brain diseases are denoted by red spots on the line. A double line foretells a legacy to befall. Branches extending toward the mounts at the bases of the fingers indicate foolishness or excess in connection with the qualities of the mounts. Branches at the end indicate overstrain of the mind and danger of brain disease.

The line of the liver, sometimes identical with the line of Saturn, extends across the other lines of the middle finger. A straight, distinct line denotes health and good memory. If crooked, sickness and short life might be expected. Rising from the wrist much good fortune is indicated. Rising from the line of life it signifies a good heart and success as a reward of labor. Cross lines detract somewhat from the good fortune. A double line means trouble as a result of the person's own fault.

Just below the fingers and above the table line is the girdle of Venus, which if distinct indicates grossness and a passionate nature, especially if curved like a J at the root of the little finger.

The wrist lines, or bracelets, when continuous and of a pure red color, indicate happiness if found with other favorable lines as above. Three lines together indicate a long life. A chain-like line is a sign of a life of hard but successful work. Lines from the wrist over the mount of the thumb and to the first finger indicate a rich marriage; to the second finger, marriage with an old person; to the third finger, marriage to a rich and artistic person; to the fourth, marriage with a sick person.

The mount of Venus at base of the thumb, when pointed out by lines, indicates love of idleness, ease, and fondness for opposite sex.

The mount of Jupiter when crossed by many lines is a sign of a strong, bold and noble character.

The mount of Saturn indicates fate of various kinds, according to the lines which point toward it or arise from it. When the fine lines upon it are broken or with semicircles intervening, the person is conceited and ungrateful.

The mount of Apollo, when well developed, is a sign of inventive powers and capacity to acquire great wealth.

The mount of Mercury when marked with dark, obscure lines indicates an untruthful, dishonest person. Clear, bright lines designate eloquence. The spaces between the joints of the finger are set apart for various items, as shown in the chart, and are apportioned according to the number and prominence of line between the joints.

Modern palm readers pay much attention to the general shape of the hand. Short, fat hands indicate hasty judgments. Long, thin hands, capacity for detail. Soft hands, laziness. Hard hands, determination. Smooth hands, sensitiveness. Large hands, love of detail. Narrow, thin palm, a weak nature. Knotted fingers, a methodical character. Hard, stiff hands, an obstinate disposition. Pointed fingers enthusiasm and imagination. Fingers with square ends or wide flat ends indicate a practical character.

If the hand is soft, flabby and without resistance, it denotes a character lacking energy and force. The study of the fingers is especially interesting and in this one learns that large fingers indicate a ponderous mind and a massive organization destined to hard work. Fat fingers signify a love of idleness, and where the third phalanx is prominently developed, a taste for the sensuous. Smooth fingers denote a facility of conception and belong to nervous, sanguine temperaments, and persons with these fingers judge at first sight or by inspiration. Pointed fingers indicate the quick conception of an idea and a rapid determination to execute it. These signify also poetry, invention and imagination. A pointed thumb denotes a disposition that no sooner desires than it executes, while a square thumb means that a conclusion once arrived at is unalterable. Square fingers always indicate positive and reasonable decisions, order, regularity, symmetry and thought. If the little finger is square, it means difficulty of understanding anything that requires promptness or acuteness of the intellectual faculties. Where the fingers are neither square, pointed nor spatulated, but simply rounded at their ends, there is apt to be great mental superiority, many of the most talented men having this form of finger.

Dry, cold hands are a sign of an over-excited or weakened nervous system, and cold, moist palms indicate digestive troubles.

On What Day Were You Born ?

A superstition has prevailed in all countries for many centuries about the evil or happy omen of the day of the week on which a child's birth happened to fall. There are as many rhymes on the subject almost as languages, but in substance they all agree :

Monday's child is fair of face.
 Tuesday's child is full of grace.
 Wednesday's child is born for woe.
 Thursday's child has far to go.
 Friday's child is loving and giving.
 Saturday's child must work for a living.
 But the child born on the Sabbath day
 Is bonny and happy, and wealthy and gay.

The following table makes it easy to ascertain on what day of the week any event past happened, provided you know the date. Not to encourage superstition, a few examples of famous men's birthdays are given to show that this superstition, like every other one, lacks fulfillment not infrequently. From the following table anyone can see not only on what day of the week one was born, but also whether a famous battle was fought on a Monday or a Saturday; whether a certain event that turned out disastrously or fortunately happened on the alleged unlucky Friday, etc.

This table shows on what date Sundays have occurred or will occur in any given year from A D 1 to 4000. Having found the date of Sunday, it is easy to ascertain the week days. To find a given date, first pick out the century in which the event occurred in the upper right-hand corner of table No 1. The present century will be found in the second column, for instance. Then follow down that column until you find the letter of the alphabet opposite the year you wish to inquire about. Having found this letter, turn to table No 2, select the column headed by the letter in question and follow down that column until you

Experience makes even fools wise.

reach the dates opposite the month you wish to inquire about. The dates you thus obtain were Sundays in the year and month you have in mind. From these days you may easily ascertain any other days of the week.

If, for example, you desired to know what day of the week Christmas day, 1891, came on, the "Sunday letter" is found by table No 1 to be D. Then on table No 2 follow the D column down until you come to the square in which December occurs and you find that Sundays in

TABLE I.

Years Less Than 100.				CENTURIES.			
				100 500 900 1,300 1,700 2,100 2,500 2,900 3,300 3,700	200 600 1,000 1,400 1,800 2,200 2,600 3,000 3,400 3,800	300 700 1,100 1,500 1,900 2,300 2,700 3,100 3,500 3,900	400 800 1,200 1,600 2,000 2,400 2,800 3,200 3,600 4,000
				C	E	G	BA
1	29	57	85	B	D	F	G
2	30	58	86	A	C	E	F
3	31	59	87	G	B	D	E
4	32	60	88	FE	AG	CB	DC
5	33	61	89	D	F	A	B
6	34	62	90	C	E	G	A
7	35	63	91	B	D	F	G
8	36	64	92	AG	CB	ED	FE
9	37	65	93	F	A	C	D
10	38	66	94	E	G	B	C
11	39	67	95	D	F	A	B
12	40	68	96	CB	ED	GF	AG
13	41	69	97	A	C	E	F
14	42	70	98	G	B	D	E
15	43	71	99	F	A	C	D
16	44	72	.....	ED	GF	BA	CB
17	45	73	.....	C	E	G	A
18	46	74	.....	B	D	F	G
19	47	75	.....	A	C	E	F
20	48	76	.....	GF	BA	DC	ED
21	49	77	.....	E	G	B	C
22	50	78	.....	D	F	A	B
23	51	79	.....	C	E	G	A
24	52	80	.....	BA	DC	FE	GF
25	53	81	.....	G	E	D	E
26	54	82	.....	F	A	C	D
27	55	83	.....	E	G	B	C
28	56	84	.....	DC	FE	AG	BA

December, 1891, came on the 6th, 13th, 20, and 27th. The 27th being Sunday, the 25th, or Christmas day, fell two days before, or Friday, which is right.

Another example: Gladstone was born December 29, 1809. On what day of the week? 1800 occurs in the second column under "Centuries" (table No 1). The year 9 appears in the first column, under "years less than 100," and on a line with it, under Centuries in 1800, appears the letter A, which was the Sunday letter for that year. The second table, under A, look for the month of December, and find that the dates of

Wide will wear, but tight will tear.

the Sundays in December, 1809, were the 3d, 10th, 17th, 24th and 31st. Gladstone was therefore born on Friday.

Ex-President Harrison was born on August 20, 1833—Tuesday, the 18th having been Sunday.

It will be noticed on every fourth line under the heading "Centuries" of table No 1 that there are two letters instead of one. This is for leap year. As leap years have 366 days, the years following them begin two days later in the week. To prevent the interruption which would

TABLE II.

	A	B	C	D	E	F	G
	1	2	3	4	5	6	7
January	8	9	10	11	12	13	14
October	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31	.....	.....	.....	.....
February .....	.....	.....	.....	1	2	3	4
March	5	6	7	8	9	10	11
November	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30	31	.....
April .....	.....	.....	.....	.....	.....	.....	1
July	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
	30	31	.....	.....	.....	.....	.....
August .....	.....	.....	1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	31	.....	.....
September .....	.....	.....	.....	.....	.....	1	2
December	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30
	31	.....	.....	.....	.....	.....	.....
May .....	.....	1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	30	31	.....	.....	.....
June .....	.....	.....	.....	.....	1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	.....

hence occur in the order of the dominical letters, leap years have two dominical letters, one indicating Sunday till the 29th of February, and the other for the rest of the year.

Telling Fortunes with Cards.

The meanings of common playing cards when used for telling fortunes have been established by custom among astrologists, gypsies and like persons for more than a century. The ace ranks highest in value; then comes king, queen, knave, ten, nine, eight and seven; these in many cases being the only cards used, though in others the whole pack is necessary.

The order and comparative value of the different suits are as follows: First on the list stands clubs. They mostly portend happiness

At twenty, the will reigns, at 30 the wit, at 40 the judgment.

and good business arrangements, and no matter how numerous or how accompanied, are seldom of bad augury. Next come hearts, which usually signify love making, invitations and good friends; diamonds, money; and spades, annoyances, sickness, or worry, sometimes loss of money.

The Meaning of the Cards.

CLUBS.

- Ace.** Promises great wealth, much prosperity, and tranquillity of mind.
King. Announces a man who is humane, upright and affectionate; faithful in all his undertakings. He will be happy himself, and make everyone round him so.
Queen. Shows a tender, mild and rather susceptible woman, who will be very attractive to the opposite sex.
Knave. An open, sincere and good friend, who will exert himself warmly in your welfare.
Ten. Denotes riches speedily from an unexpected quarter, but it also threatens the loss of a dear friend.
Nine. Shows you will displease your friends by too steady an adherence to your own opinion.
Eight. Shows the person to be covetous, and extremely fond of money; that he will obtain it, but not make a proper use of it.
Seven. Promises the most brilliant fortune and the most exquisite bliss this world can afford, but beware of the opposite sex, from these alone can you experience misfortune.
Six. Shows you will enter a lucrative partnership.
Five. Declares that you will be shortly married to a person who will improve your circumstances.
Four. Shows inconstancy and change.
Tray. Shows you will be married three times, each time to a wealthy person.
Deuce. Shows opposition or disappointment.

DIAMONDS.

- Ace.** Signifies a letter.
King. Shows a man of fiery temper, continued anger, seeking revenge, and obstinate in his resolutions.
Queen. Signifies the woman shall be a coquette, and fond of company.
Knave. - However nearly related, will look more to his own interest than yours, will be tenacious in his own opinions, and fly off if contradicted.
Ten. Promises a country husband (or wife), with wealth; and many children; it also signifies a purse of gold.
Nine. A surprise about money.
Eight. Shows the person will not marry till late in life, and then it will not be a happy union.
Seven. Waste of goods, and losses.
Six. An early marriage and widowhood, but a second marriage would probably be worse.

Five. Shows you will have success in enterprises; if married, good children.

Four. Vexation and annoyance.

Tray. Shows you will be concerned in quarrels, lawsuits and domestic disagreements, your partner for life will be a vixen, bad tempered, and make you unhappy.

Deuce. Shows your heart will be engaged in love at an early period, but you will meet with great opposition.

HEARTS.

Ace. Signifies feasting and pleasure, and is also the house. If attended with spades, it is quarreling; if by hearts, friendship and affection; if by diamonds, you will hear of an absent friend; if by clubs, merry making and rejoicing.

King. Shows a man of good-natured disposition, hot and hasty, rash in his undertakings, and very amorous.

Queen. A woman of fair complexion, faithful and affectionate.

Knave. A person of no particular sex, but always the dearest friend or nearest relation of the consulting party. You must pay great attention to the cards that stand next to the knave, as from them alone you can judge whether the person it represents will be favorable to your inclinations or not.

Ten. Shows a good heart, it is corrective of the bad tidings of the cards that stand next it; if its neighboring cards are of good report, it ascertains and confirms their value.

Nine. Promises wealth, grandeur and high esteem; if cards that are unfavorable stand near it, you must look for disappointments, and the reverse. If favorable cards follow these last at a small distance, expect to retrieve your losses, whether of peace or goods.

Eight. A sign of drinking and feasting.
Seven. Shows the person fickle and unfaithful.

Six. Shows a generous, open and credulous disposition, easily imposed on, but the friend of the distressed.

Five. Shows a wavering and unsettled disposition.

Four. Shows the person will not be married till quite late in life, which will proceed from too great a delicacy in making a choice.

Tray. Shows your own imprudence will greatly contribute to your experiencing much ill-will from others.

Those who have no troubles will be troubled at nothing.

The Meaning of the Cards.—Continued

Deuce. Shows extraordinary good future, and success will attend the person; though if unfavorable cards attend, this will be a long time delayed.

SPADES.

Ace. Relates entirely to affairs of love, whether lawful or unlawful; it also denotes death when the card is upside down.

King. Shows a man ambitious and successful at court, or with a great man, who will befriend him, but let him beware of a reverse.

Queen. A woman who will be corrupted by the rich of both sexes. It also indicates a widow.

Knave. Shows a person, who, although he has your interest at heart, will be too indolent to pursue it.

Ten. Is a card of bad import, and will, in a great measure, counteract the good effects of the cards near it.

Nine. The worst card of the pack; portends dangerous sickness, total loss of fortune, and calamities; also endless discussion in your family.

Eight. Shows you will experience strong opposition from your friends. If this card comes close to you, leave your plan and follow another.

Seven. Shows the loss of a valuable friend, whose death will plunge you in very great distress.

Six. Will give you very little interpretation of your success.

Five. Promises good luck in the choice of your companion for life, who will be fond of you. It also shows the temper rather sullen.

Four. Indicates much sickness, and that your friend will injure your future.

Tray. Shows you will be fortunate in marriage, but that your partner will be inconstant, and that you will be made unhappy thereby.

Deuce. Always signifies a coffin, but whom it is for must depend on the other cards near it.

How to Tell Fortunes with Cards.

In the first place, take a pack of fifty-two cards and shuffle them three times well over, and making your significator which queen you please (if the lady performs the operation for herself, or king if a gentleman), then proceed to lay them on a table, nine in a row, and wherever you find yourself placed count nine cards every way, not forgetting your said significator, then you will see what card your significator comes in company with, and that is the prophetic card, and whatever it is, so it will happen to you.

When several diamonds come together, it is a sign that you will soon receive some money; several hearts, love; several clubs, drink and noisy, troublesome company; several spades, trouble and vexation.

If two red tens come next the significator it is a sign of marriage or prosperity, the ace of hearts is your house, the ace of clubs a letter, the ace of spades death, spite, or quarreling (for this is the worst card in the pack); the ten of diamonds is a journey, the three of hearts is a salute, the three of spades is tears, the ten of spades is sickness, the nine of spades is sad disappointment or trouble, the nine of clubs shows a jovial entertainment or reveling, the nine of hearts feasting, the ten of clubs traveling by water, the ten of hearts some place of amusement, the five of hearts a present, the five of clubs a bundle, the six of spades a child, the seven of spades a removal, the three of clubs fighting, the eight of clubs confusion, the eight of spades a roadway, the four of clubs a strange bed, the nine of diamonds business, the five of spades a surprise, the two red eights new clothes, the three of diamonds speaking with a friend, the four of spades a sick bed, the seven of clubs a prison, the two of spades a false friend, the four of hearts the marriage bed.

Indications from Date of Birth.

An old custom used to foretell future life by the date of birth, the signs of the zodiac which accompanied the dates being supposed to convey certain qualities.

Jan 21—Feb 21: Fond of pleasure, affectionate, but nervous disposition, likely to acquire wealth.

Feb 21—March 21: Distrustful of self, but conscientious. Vigorous, fond of history and science.

March 21—April 20: Self-willed, imperious, with musical tastes, afflicted with headaches.

April 20—May 21: Headstrong, suspicious, with social talents, strong, nervous, passionate.

May 21—June 21: Artistic tastes, imitative, disposition nervous and irritable, hasty in judgment.

June 21—July 22: Loving disposition, sensitive.

July 22—Aug 22: Rather visionary, fond of new things, kind and affectionate.

Aug 22—Sept 22: Extremely ambitious, but with domestic disposition, good eyesight, masterful.

Sept 22—Oct 23: Good judgment, fond of horses, speculative turn of mind.

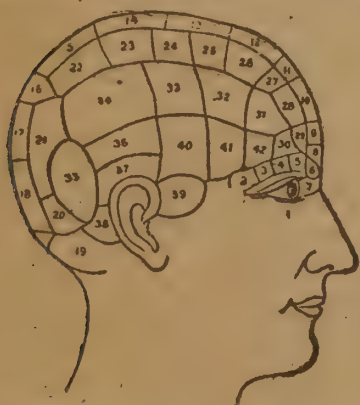
Oct 23—Nov 21: Quiet disposition, ambitious, jealous nature, headstrong, vigorous appetite and constitution.

Nov 21—Dec 21: Having strong friendships and strong hatreds.

Dec 21—Jan 21: Fond of controlling, with many practical talents, a good disposition but rather extravagant tastes, nervous.

Phrenology.

Character reading according to the development and proportion of various parts of the head has become quite popular in America. Its reliability is often doubted but there are many people who are



impressed with its plausibility and who would like to test it for themselves. To such the chart and list of organs herewith will be of service. It should be said that the phrenologist usually takes into account also the features, expression, manner and physique, from which indications alone it is well known that a good judge of character may often form surprisingly correct estimates. As to the theory of phrenology, there is a certain basis of truth which needs further experiment and testing before becoming of definite practical use, while the large amount of humbug often injected into the practice of the science will pass away

of itself, as knowledge grows more exact.

PHRENOLOGICAL CHART.

- | | | |
|-------------------|-------------------------|------------------------|
| 1. Language. | 15. Self-esteem. | 29. Locality. |
| 2. Calculation. | 16. Continuity. | 30. Time. |
| 3. Order. | 17. Inhabitiveness. | 31. Mirthfulness. |
| 4. Color. | 18. Parental affection. | 32. Ideality. |
| 5. Weight. | 19. Amativeness. | 33. Sublimity. |
| 6. Size. | 20. Conjugality. | 34. Cautiousness. |
| 7. Form. | 21. Friendship. | 35. Combativeness. |
| 8. Individuality. | 22. Approbateness. | 36. Secretiveness. |
| 9. Eventuality. | 23. Consciousness. | 37. Destructiveness. |
| 10. Comparison. | 24. Sanguineness. | 38. Love of life. |
| 11. Humanity. | 25. Spirituality. | 39. Appetite for food. |
| 12. Benevolence. | 26. Imitation. | 40. Acquisitiveness. |
| 13. Veneration. | 27. Agreeableness. | 41. Constructiveness. |
| 14. Firmness. | 28. Causality. | 42. Tune. |

Claims of Astrology Explained.

Astrology is the science which treats of the influence of the heavenly bodies upon the earth and all its inhabitants. Through a knowledge of planetary law, much of human destiny can be foretold, because for thousands of years a correspondence between the movements of the planets and the events occurring has been known. It is no more supernatural than chemistry or any other science. Any observer of human nature realizes that what is called heredity, environment and circumstances have much to do with the nature and development of individuals. Some are even compassionate enough to say of those who seem possessed of the devil, that "they can't help it, it is born in them." Jesus brought out the same idea when he prayed on the cross, "Father, forgive them, for they know not what they do." Scientific minds realize there is no effect without a cause. To ascribe the cause of the general conditions of life to planetary law, is no more unnatural than accepting the law of gravitation as the cause of a falling apple reaching the earth. We know that the earth and planets of our solar system revolve around the sun in various orbits, at different distances and at certain rates.

That there are forces such as heat, electricity, etc, we do not doubt, and that some of them can be felt at great distances, especially electricity, is well known. Neither do we doubt the reality of earth, water, fire, air and ether.

Everything on the earth is closely related to everything else. The apple is related to the tree, the tree to the earth, water, warmth (fire) of the sun, and the air. The same with human beings. We cannot exist without the elements and without each other. The sun sustains life and gives to each planet and star its special quality or vibration. The ocean's tides depend upon the moon. So we find that the earth without two other heavenly bodies (sun and moon) could not exist as it now does. The heat of the sun is a vibration which travels through space in all directions. That which touches the earth creates a glow or thrill of life or warmth, or, in other words, a like vibration, in different degrees, according to their distance from the sun, and reflects it to the earth.

Imagine the human body to be a little earth, the center of a movable zodiac, and reflect the rays of a lighted lamp upon it with a small looking glass. We have then the influence of that looking glass upon the body as well as that of the lamp (sun). Now have a number of looking glasses or bright balls of different sizes and qualities, corresponding to the planets, and have them revolve around the lamp in their various orbits, at different heights, and we notice different effects from them as they change position. If one large ball were in front of us and another directly behind, some distance from the sun, one would



THE RELATIVE DISTANCES OF THE PLANETS FROM THE SUN.

try to warm and the other chill us. So the influence they exerted upon the central body would depend upon their angle or position toward each other and the body. One ball would noticeably affect the head, either pleasantly or otherwise, another some other part of the body, and every time they reached certain angles in relation to where they were when they started they would have some special effect. Thus it will be seen that the heavenly bodies are related and respond to each other's influences as all life responds to heat and cold.

The keenest minds for hundreds and thousands of years have observed that the various planets have certain effects upon human life, according to their angles or aspects at time of birth and their subsequent transits. When the same events are caused by the same planetary aspects again and again, that cause and effect is established as a fact and not a coincidence. Originally astrology and astronomy were one and the same science. Kepler was a famous astrologer as well as astronomer. In early times astrology was closely allied to religion, and the religious leaders were versed in it. But as in various ages the human mind runs in different channels, it began to turn from the spiritual and unseen forces to more material things, and astrology, following the trend of human thought, became so materialistic and often superficial, that its practice was prohibited by the church and state, which were then united. Therefore real astrological knowledge was confined to the few earnest minds, and has been handed down by them from generation to generation, and will no doubt be again recognized as one of the fundamental sciences.

There are eight planets whose effect upon human destiny is much understood by astrologers. Their names and signs are as follows:

- ♄ Saturn, cold and moist.
- ♀ Venus, warm and moist.
- ☉ Sun, hot and dry.
- ♃ Jupiter, warm and moist.
- ♂ Mars, hot and dry.
- ☾ Moon, cold and moist.
- ☿ Mercury, according to planet it is near.
- ♅ Herschel or Uranus, intensity.
- ♆ Neptune is used by some astrologers, but its nature and effects are very little known.

The signs of the zodiac are different constellations or groups of stars surrounding the sun, which were imagined to form the shape of various animals. They correspond to different portions of the body and have the elemental qualities, as shown below.

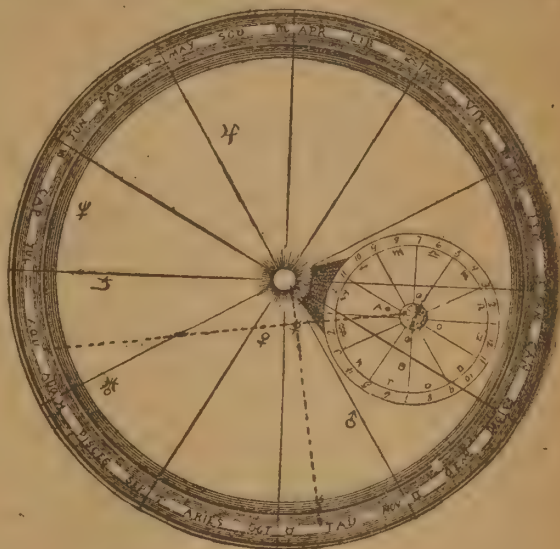
Names of the zodiacal signs, their corresponding parts of the body and elemental qualities:

- ♈ Aries (the ram), the head; fiery.
- ♉ Taurus (the bull), the neck and throat; earthy.
- ♊ Gemini (the twins), the arms and lungs; airy.
- ♋ Cancer (the crab), the stomach; watery.
- ♌ Leo (the lion), the heart; fiery.
- ♍ Virgo (the virgin), the bowels; earthy.
- ♎ Libra (the scales), back and kidneys; airy.
- ♏ Scorpio (the scorpion), the pelvis; watery.
- ♐ Sagittarius (the archer), the hips and thighs; fiery.
- ♑ Capricornus (the goat), the knees; earthy.
- ♒ Aquarius (the water bearer), the ankles; airy.
- ♓ Pisces (the fishes), the feet; watery.

Modern astrology is reckoned from the movable zodiac, with the earth as its center. It is in reality all the sun's zodiac, but the direction of the planets from the earth and sun differs so there seem to be two, as the accompanying cut illustrates.

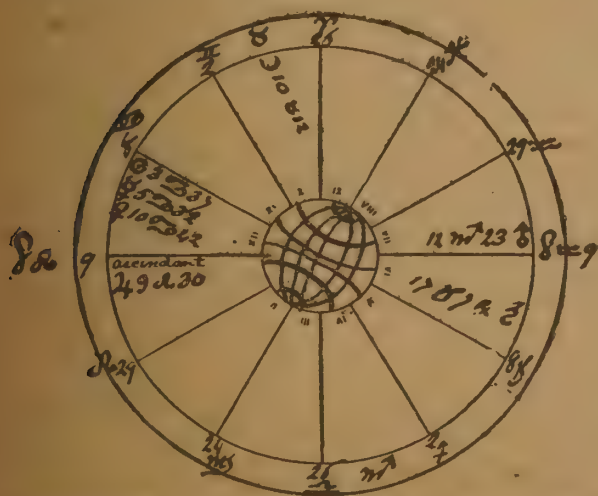
The lines through Mercury from the earth show it to be in the zodiacal sign Aquarius; from the sun it appears in the sign Taurus. Therefore we take the earth as the center of our zodiac.

The relative position of the planets at time of birth determines the circumstances and general character of the person. People born on the same day, and especially the same hour, are sure to have the same quality of events and natural tendencies. There are only a limited number of distinct types of individuals, the others are different proportions of those types. Besides the angles or positions of the planets at birth, the signs of the zodiac in which they are placed qualify their effect. Then the planets themselves have their own characteristics. The chart of the heavens, showing the places of the planets at birth, is called a horoscope.



SIGNS OF THE ZODIAC.

The figures around the earth's zodiac show it to be 12 o'clock.



HOROSCOPE OF HENRY WARD BEECHER,
BORN 1813, JUNE 24, 7.30 A. M.

The center is the earth, and the place marked "ascendant" the point of birth. The one fact of the planet Jupiter being at that spot is sufficient to render the destiny illustrious. Mercury—ruling the mind—being in Cancer, denotes great versatility; the sun near it gives force and Venus lends emotional culture and refinement.

upon financial and worldly affairs.

The moon causes our moods and usual everyday happenings, receipt of letters, etc; they all affect the health. The sun, moon, Jupiter and Venus are considered benefi-

The planet Venus rules the affections, pleasures and appetites. When well aspected it makes a person faithful, affectionate, cheerful, etc; when poorly placed, extravagant and immoral. Mercury's relation to the other planets determines the cast of mind. The sun and moon also influence the mind. Mars is quick and fiery in its effect, causing accidents and fevers, or giving courage in danger, as it is placed. Jupiter gives justice, benevolence, kindness and aspiration. Saturn is slow in its motion, taking 29 years 157 days to revolve around the sun; it gives patience, reserve and dignity, or jealousy and stubbornness; its immediate effects are more lasting than those of the others. Herschel seems to store up all sorts of sudden occurrences for its victims, although it is 84 years in completing its orbit. Saturn, Jupiter and the sun bear most directly

The moon causes our moods and

cent planets, Mercury is neutral, the others are often unfortunate in their effects. In reading a horoscope it is necessary to consider the signs of the zodiac in which the planets are placed, the nature of the planets and their relative positions. It requires much concentration and good judgment to sum up the general indications, so many of the aspects counteract each other more or less.

If we know that at a certain time we are liable to be ill, or business slow, we can be prepared beforehand and so avert the intensity of the condition to some extent. If we have no escape from a man who rushes up to strike us in the face, we can at least turn it one side and thus receive a lighter injury. A better knowledge of our own natures and the cultivation of self-control will enable us to more fully realize the grandeur of the universe, our own wonderful powers and the love of God.

Principal Gods and Goddesses of the Romans and Greeks, with Parentage and Province.

(Harper's Book of Facts.)

Roman.	Greek.	Parentage.	Over what presiding.
Apollo	Apollon	Jupiter and Latona	Music, poetry, archery, prophecy
Auroia	Eos	Hyperion and Theia	The dawn.
Æolus	Æolos	Hippos and Melanippe	The winds.
Bacchus	Dionysus	Jupiter and Semele	The vine.
Bellona	Enyo	Phoreys and Ceto	War.
Ceres	Demeter	Saturn and Cybele	Agriculture.
Cupid	Eros	Venus	Love.
Cybele	Rhea	Uranus and Terra	Nature.
Diana	Artemis	Jupiter and Latona	Hunting and chastity.
Juno (sister and wife of Jupiter)	Hera	Saturn and Cybele	Marriage and domestic life.
Jupiter	Zeus	Saturn and Cybele	Over all, supreme God.
Mars	Ares	Jupiter and Juno	War.
Mercury	Hermes	Jupiter and Maia	Commerce and gain.
Minerva	Pallas-Athene	Jupiter	Wisdom.
Neptune	Poseidon	Saturn and Cybele	The sea.
Nox	.....	Chaos	{ Night, death, sleep, ridicule. Mother of Charon, Fates and the Furies, and sister of Erebus.
Pluto	Phiton or Hades	Saturn and Cybele	Lower world.
Saturn	Cronos	Uranus and Terra	{ Father of the gods and brother of the Titans.
Venus	Aphrodite	Jupiter and Diore	Love and pleasure.
Vesta	Hestia	Saturn and Cybele	Virginity.
Vulcan	Hephæstus	Jupiter and Juno	Fire.

Mysticism.

BY HARRIET MYRICK.

Mysticism is not confined to any creed or society; it is a quality or condition of life. A mystic believes that the divine essence of God can be felt and realized. Such realization comes entirely from experience and not from observation or argument. This divine essence is consciously touched in moments of exaltation and inspiration only. It is the life or soul of all art and knowledge. It is the real power or spiritual illumination of the grand character—true being. The mystic divides the universe into five elements, dense substance or earth being first, then water, fire, air and ether. In and through all is the divine essence.

When it is fair, take an umbrella.

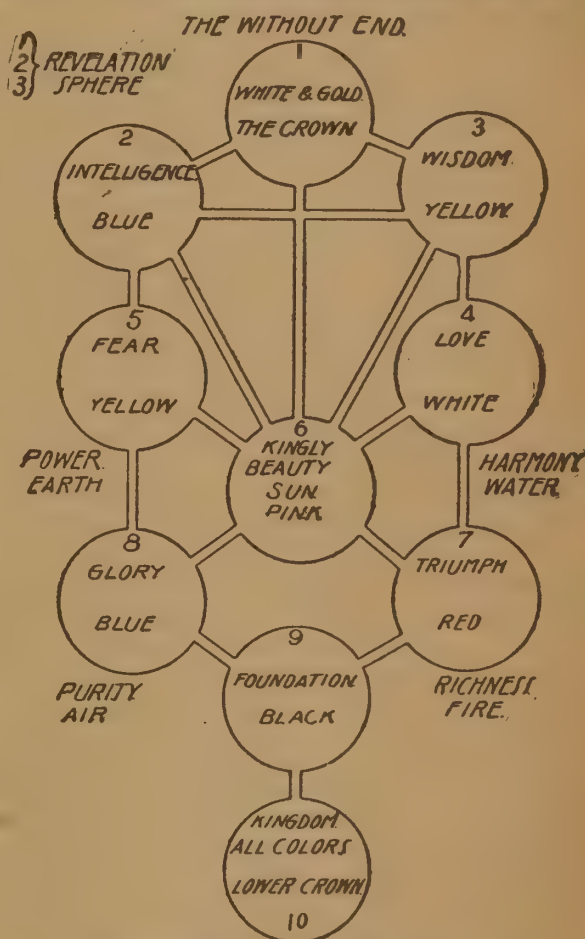
The five senses are for the purpose of recognizing these elements. When they all work together perfectly the individual gets the harmonious effects of the elements. Then it is that he gets into harmony with nature and understands her secret treasures. Through the training and development of the physical senses—smell, taste, sight, touch and hearing—conscious use of the inner or spiritual senses is obtained. There is no dividing line between the two, the inner senses being but a continuation of the outer physical.

The finest sense perception is intuition, or soul perception. When a person can recognize an intuition and rely upon its truthfulness, he possesses what is called mystic power. When highly developed, he can sense both the past and the future correctly. A high-grade mystic is said to be initiated into the divine mysteries,—that is, he has more than ordinary understanding of the laws of being. An ordinary psychic is not a mystic because his power is often unreliable and gained by any method of living.

The true mystic must lead the pure and noble life. He must be pure in body, mind and heart. As the body affects the mind and the mind the body, neither one can be clean without the help of the other. By frequent bathing and change of clothing, the taking of pure light foods, which will not stimulate or load the system, the body is enabled to receive sensations from the essences of the elements or external world, which are not ordinarily felt.

Mysticism considers thought the result of sensation. When one sees, feels, or hears anything, the sensation is conducted to the brain, and thought and analysis ensue. Unless one can first truthfully sense the object, correct analysis is impossible. When in a condition of intense spiritual emotion or ecstasy, one becomes conscious of the divine essence. In such a state, "to feel is to know." Then it is that perfect expression is possible and only then. Mystical growth is most directly acquired by contact with colors and musical sounds. Modern scientific research proves that the sun's rays of light actually deposit atoms in our brain cells through the action of the eye, a fact which mystics have known for thousands of years.

A mystic has the conscious use of his natural powers. He is a normal type of the race, a person whose senses co-ordinate, whose body and mind work in harmony. To him the elements bring harmony and consequent vitality and power. While he may live an active life in the



The most exquisite folly is made of wisdom spun too fine.

world, he does not allow it to drag him down into its chaotic conditions, but he believes the divine essence must be realized in the lowest and most material expressions of life before the spiritual or relative faculties can act clearly. By seeing and feeling beautiful things, he believes that gradually he will exist in the world-beautiful, and be able to express it. Thus it is that he uses the visible universe as a means of suggesting the invisible universe.

Through the excessive development of the intellect, to the crushing of the natural instincts and emotions, humanity has become abnormal—wandered from God. It no longer generally believes revelation to be the true source of knowledge, as does the mystic. To the latter, the truth looked for is revealed as soon as he is ready to receive or perceive it. There is no limit to the mystic power which can be obtained through concentration, or the harmonious working of the body and mind (outer and inner senses). There are mystics of all shades and grades. The few who have reached an exalted condition of being are the centers around which the race unconsciously revolves.

The Qabbalah is the ancient book of mystic law and teachings. It is known to have been taught 20,000 years before the time of Christ. Every sacred book that is known contains more or less of its teachings. The Qabbalistic laws were first handed down orally, and finally by symbolism and hieroglyphics, because they were held sacred. The great minds of all ages have been mystics versed in Qabbalistic law. There are ten primary divisions of the Qabbalah called the ten Sephiroth, representing ten elementary principles; three relate to the world of revelation, and seven to the natural world of the senses. They are set forth in the Talmud of the Jews and in the Christian Bible. The powers they represent are identified with the ten commandments, the Lord's prayer and the decalogue. The principles of the four gospels, Matthew, Mark, Luke and John, correspond to those of the four most important divisions of the Qabbalah, and have been symbolized by the ox, the eagle, the lion and the man, and by the colors yellow, blue, red and white, and the qualities, power, purity, richness and harmony.

The symbol of the ten Sephiroth of the Qabbalah is called the Sephirothic tree of life, and was represented previously. It is the foundation of all symbolism and contains the mystic meaning of numbers and colors and the principles of the noble life, which must be lived to be understood. It will be noticed that the circles are all connected, making one grand whole, with the sun, or life-force, in the center.

The fountains mingle with the river,
And the rivers with the ocean;
The winds of heaven mix forever
With a sweet emotion;
Nothing in the world is single;
All things, by a law divine,
In one another's being mingle—
Why not Thou with The Beloved?

Shelley.

From New York to San Francisco by water the distance at present is 15,672 miles, or 31,344 miles the round trip; by the Nicaragua canal the distance between the same points will be 5636 miles, or 11,272 miles both ways, a saving of 10,036 miles each way, and of 20,072 miles on the round trip.

He that won't be counselled, can't be helped.

The Oracle of Letters.

An old fortune-telling device is the Moslem oracle. To use it, rule off a sheet of paper into 100 squares and copy the accompanying letters.

Shut your eyes and place the finger upon any one of the letters, at random. Write down the letter and every fifth letter in the rest of the table, proceeding from left to right. The result will be an answer as to the advisability of the course of action which you are supposed to have in mind. There are five distinct answers to be obtained.

D	W	W	A	W	O	H	A	B	H
I	C	I	S	O	T	D	T	T	W
W	O	A	A	A	I	E	N	I	I
T	S	D	N	T	H	I	A	A	E
O	T	T	N	T	U	W	T	D	H
T	I	A	E	S	F	L	I	N	U
E	L	N	J	C	A	D	T	O	C
R	O	H	Y	E	O	W	Y	E	P
F	R	W	E	D	I	O	I	A	E
L	N	S	C	T	L	G	H	E	H

The Wheel of Pythagoras.

An ancient fortune-telling device is the "wheel of Pythagoras." The numbers in the upper half of the wheel or table of figures are supposed to be fortunate and those in the lower half unfortunate. The numbers in the right-hand section of the table indicate long time; that is, a long time before the event in question comes to pass, while the figures on the left half of the table indicate a short time.

1	11	22	23	29
6	2	12	23	30
15	7	3	13	24
19	16	8	4	14
25	20	17	9	5
27	26	21	18	10

To inquire by the use of the table concerning any matter, first close the eyes and prick out any number with a pin. To the number thus chosen by chance, add the letter of the alphabet corresponding to the first letter of the inquirer's name. John, for instance, must add 10 because J is the tenth letter of the alphabet. Then add the number of

the day of the week and of the planet corresponding to that day. These numbers as given are of ancient origin.

Sunday, 106; Sun, 34.

Monday, 52; Moon, 45.

Tuesday, 52; Mars, 39.

Wednesday, 102; Mercury, 114.

Thursday, 31; Jupiter, 78.

Friday, 68; Venus, 45.

Saturday, 45; Saturn, 55.

After adding as above, divide the sum by thirty as often as it can

Two precious jewels—time and good advice.

be done. Then look for the remainder in the table. If there is no remainder, look for the number thirty. The answer will be according to what part of the table the number falls, as previously explained.

Meaning of Dreams.

To dream of sudden riches is a bad sign.
 To dream of a rainbow denotes coming changes.
 To dream of an anchor is a sign of hope.
 To dream of banquets is a favorable sign.
 To dream of birds denotes suit at law.
 To dream of riding in a coach signifies pride.
 To dream of death or funerals signifies a wedding.
 To dream of holding flowers is a favorable sign.
 To dream of marriage denotes danger.
 To dream of music indicates coming good news.
 To dream of seeing a play denotes good fortune.
 To dream of ants denotes a grasping disposition.
 To dream of a boat on clear water is a sign of coming good fortune, also playing at cards.

Mythology of Norway and Sweden.

The Scandinavian mythology is very prolific in gods, goddesses, and heroes, the principal gods and goddesses being: Odin or Woden, the All-father, and his wife Frigga; Baldur (son of Odin) and his wife Nauna; Thor (son of Odin) and his wife Sif; Bragi (son of Odin) and his wife Idun, the latter the keeper for the gods of the apples of youth. Ty or Tyr (son of Odin); Njord and his wife Skadi, the Minerva of Scandinavian mythology; Frey (son of Njord) and his sister Freya; Hiem-dall, steward of the gods; Hod or Hodur; Vidar; Vali; Uller; Loki, foster brother of Odin, and cause of all evil; Hela or Hel, goddess of the lower regions; Saga, goddess of history; Gefion and others, with the Norns, their sisters, corresponding to the Fates of the Greeks.

Common Superstitions.

The fact that the same signs are in different countries or by different persons interpreted in exactly opposite ways, is sufficient evidence of the trifling nature of all such notions.

Walking under a ladder; ill fortune.
 A present of a knife cuts friendship.
 Dropping a knife; a gentleman caller.
 A bird flying into a room; sickness.
 Two looking in a mirror at the same time; disappointment to both.
 A black cat looking in at a window; bad luck, ill fortune.
 Walking over white flagstones; ill fortune.
 Moving on Saturday; a short stay.
 To stir coffee with a fork; ill fortune.
 Seeing the new moon over the right shoulder; good fortune.
 When you see a load of empty barrels; a wish made comes true.
 Stepping into a church right foot first; good fortune.
 A spider on the garments; something new to wear.
 Laying an umbrella upon a bed; disappointment.
 To return after once starting out; disappointment. To counteract, count ten and make a fresh start.

Shrewdness without wisdom is worthless.

Shoes worn out at the toe; sign of a spendthrift.

A present of a pair of shoes or slippers; separates friends.

A white dove flying into a room is a sign of death; two spoons in a cup have the same signification.

Language of Flowers.

Oak was the patriot's crown, bay the poet's, and the myrtle the crown for beauty. The olive was the token of peace, as the ivy was the emblem of Bacchus. The significance of many flowers is derived from their properties. The amaranth has a very poetical meaning, being called "the never-fading" by the Greeks, because of its duration. It has been selected to typify immortality. The rose—by universal suffrage made the queen of the flowers—has a symbolism varying with its color; a single red rose signifies "I love you;" the small white bridal rose typifies happy love, and the moss rosebud, a confession of love. The following are some well-known flowers, with their symbolism as used in poetry:

Anemone—Frailty, Anticipation.
 Apple Blossom—Preference.
 Buttercups—Riches.
 Calla—Magnificent beauty.
 Candytuft—Indifference.
 Cowslip—Youthful beauty.
 Daffodil—Unrequited love.
 Dandelion—Coquetry.
 Forget-me-not—True love.
 Foxglove—Insincerity.
 Geranium—Deceit.
 Gentian—Virgin Pride.
 Golden-rod—Encouragement.

Heliotrope—Devotion.
 Honeysuckle—Fidelity.
 Hyacinth—Sorrow.
 Lilac—Fastidiousness.
 Marigold—Contempt.
 Lily—Majesty, Purity.
 Narcissus—Self-love.
 Pansy—Thoughts.
 Poppy—Oblivion.
 Snowdrop—Friend in need.
 Sweet William—Gallantry.
 White Violet—Modesty.

National Flowers.

Country.	Flower.
Canada.....	Sugar Maple
China.....	Narcissus
Egypt.....	Lotus
England.....	Rose
France.....	Fleur-de-lis (Iris)
Germany.....	Corn Flower
Greece.....	Violet
Ireland.....	Shamrock

Country.	Flower.
Italy.....	Lily
Japan.....	Chrysanthemum
Prussia.....	Linden
Saxony.....	Mignonette
Scotland.....	Thistle
Spain.....	Pomegranate
Wales.....	Leek

State Flowers.

State.	Flower.
Alabama.....	Golden-Rod
Colorado.....	Columbine
Delaware.....	Peach Blossom
Idaho.....	Syringa
Iowa.....	Wild Rose
Maine.....	Pine Cone and Tassel
Minnesota.....	Cypripedium or Moccasin Fl'r
Montana.....	Bitter Root

State.	Flower.
Michigan.....	Apple Blossom
Nebraska.....	Golden-Rod
New York.....	Rose
Oklahoma Ter.....	Mistletoe
Oregon.....	Golden-Rod
Rhode Island.....	Violet
Utah.....	Sego Lily
Vermont.....	Red Clover

Only two of these so-called State flowers have been formally adopted by legislature; i. e., that of Utah and that of Vermont. The others are merely the choice of a majority of the school children of the respective States, as expressed by vote. For a national flower the most prominent candidate seems to be the columbine, golden-rod and maize.

HISTORICAL FLOWERS.

Several flowers have been prominent in history as the emblem of parties or factions. Thus, during the English war of the roses, 1455-1485, the house of Lancaster adopted the red rose, and the house of York the white rose. William Prince of Orange chose the orange. The Guelfs and Ghibellines adopted the red lily and white lily respectively. Lord Beaconsfield's followers wore a primrose and the Bonapartists of France wore a violet.

HOUSEHOLD HINTS AND HELPS.

One Hundred Best Books.

The most famous list of reading is doubtless the one compiled some years ago by Sir John Lubbock, the well-known English savant. This list does not include works of authors who were living at the time the list was compiled. Otherwise, the list would no doubt have mentioned works by Tennyson, Arnold, Ruskin, and others. The list is given herewith. Some of the large libraries keep these books in a collection by themselves, for the convenience of readers:

- | | |
|--|---|
| <p>The Bible.
The Meditations of Marcus Aurelius.
The Teachings of Epictetus.
Aristotle's Ethics.
Analects of Confucius.
St. Hiltaire's <i>Le Bouddha et sa Religion</i>.
Wake's Apostolic Fathers.
Imitation of Christ, by Thomas a Kempis
Confessions of St. Augustine.
The Koran (portions of).
Spinoza's <i>Tractatus Theologico-Politicus</i>.
Pascal's <i>Pensees</i>.
Butler's Analogy of Religion.
Taylor's Holy Living and Dying.
Bunyan's Pilgrim's Progress.
Keble's Christian Year.
Plato's Dialogues (the Apology, Crito and Phædo).
Xenophon's <i>Memorabilia</i>.
Aristotle's Politics.
Demosthenes' De Corona.
Cicero's De Officiis, De Amicitia and De Senectute.
Plutarch's Lives.
Berkeley's Human Knowledge.
Descartes' Discours sur la Methode.
Locke on the Conduct of the Understanding.
Homer.
Hesiod.
Virgil.
Maha Bharata.*
Ramayana.*
The Shahnameh (Persian Poem).
The Nibelungenlied.
Malory's Morte d'Arthur.
The Sheking (Chinese Poetry, Classic).
Kalidasa's Sakuntala.
Æschylus' Prometheus and Triology of Orestes.
Sophocles' Oedipus.
Euripides' Medea.
Aristophanes' The Knights and Clouds.
Horace.
Chaucer's Canterbury Tales.
Shakespeare.
Milton's Paradise Lost, Comus and Shorter Poems.
Dante's Divina Commedia.
Spenser's Faerie Queene.
Dryden's Poems.
Scott's Poems.
Wordsworth.
Burns.</p> | <p>Pope's Essay on Criticism, Essay on Man, Rape of the Lock.
Byron's Childe Harold.
Gray.
Tennyson.
Herodotus.
Xenophon's Anabasis.
Thucydides.
Tacitus' Germania.
Livy.
Gibbon's Decline and Fall.
Hume's History of England.
Grote's History of Greece.
Carlyle's French Revolution.
Green's Short History of England.
Lewes' History of Philosophy.
Arabian Nights' Entertainments.
Gulliver's Travels.
Defoe's Robinson Crusoe.
Vicar of Wakefield.
Cervantes' Don Quixote.
Boswell's Life of Johnson.
Moliere.
Schiller's William Tell.
Sheridan's Critic, School for Scandal and Rivals.
Carlyle's Past and Present.
Bacon's Novum Organum.
Smith's Wealth of Nations (in part).
Mill's Political Economy.
Captain Cook's Voyages.
Humboldt's Travels.
White's Natural History of Selborne.
Darwin's Origin of Species and Naturalist's Voyage.
Mill's Logic.
Bacon's Essays.
Montaigne's Essays.
Hume's Essays.
Macaulay's Essays.
Addison's Essays.
Emerson's Essays.
Edmund Burke's Select Works.
Smile's Self-Help.
Voltaire's Zadig and Micromegas.
Goethe's Faust and Autobiography.
Thackeray's Vanity Fair.
Thackeray's Pendennis.
Dickens' Pickwick.
Dickens' David Copperfield.
Lytton's Last Days of Pompeii.
George Eliot's Adam Bede.
Kingsley's Westward Ho.
Scott's Novels.</p> |
|--|---|

* Epitomized in Talboys. Wheeler's History of India.

Best Ten Short Poems.

The following list of best ten short poems received the prize as the result of a contest conducted by a New York periodical.

Elegy in a Country Churchyard, Gray.
Thanatopsis, Bryant.
A Psalm of Life, Longfellow.
The Raven, Poe.
Charge of the Light Brigade, Tennyson

The Skylark, Shelley.
The Chambered Nautilus, Holmes.
Maud Muller, Whittier.
The Bridge of Sighs, Hood.
Burial of Sir John Moore, Wolfe.

One Hundred Best Works of Fiction.

Another well-known list of books is that given by Professor Simonds, the American writer on subjects connected with literature. The title of each work is followed by the surname of the author.

Morte d' Arthur,	Malory	Hypatia,	Kingsley
Robinson Crusoe,	Defoe	Westward Ho,	"
Vicar of Wakefield,	Goldsmith	Hereward the Wake,	"
Sense and Sensibility,	Austin	John Halifax, Gentleman,	Craik
Pride and Prejudice,	"	The Cloister and the Hearth	Reade
Waverley,	Scott	Elsie Venner,	Holmes
Guy Mannering,	"	Adam Bede,	Eliot
The Antiquary,	"	The Mill on the Floss,	"
Old Mortality,	"	Silas Marner,	"
Rob Roy,	"	Romola,	"
Heart of Midlothian,	"	Middlemarch,	"
Bride of Lammermoor,	"	The Man Without a Country,	Hale
Ivanhoe,	"	Lorna Doone,	Blackmore
The Abbot,	"	A Daughter of Heth,	Black
Kenilworth,	"	John Inglesant,	Shorthouse
Quentin Durward,	"	All Sorts and Conditions of Men,	Rice
The Talisman,	"	A Modern Instance,	Howells
The Spy,	Cooper	The Rise of Silas Lapham,	"
The Pilot,	"	A Hazard of New Fortunes,	"
Last of the Mohicans,	"	The Grandissimes,	Cable
The Pathfinder,	"	But Yet a Woman,	Hardy
The Deerslayer,	"	Robert Elsmere,	Ward
Wing and Wing,	"	David Grieve,	"
Peter Simple,	Marryat	Marcella,	"
Mr. Midshipman Easy,	"	Tess of the D'Urbervilles,	Hardy
Last Days of Pompeii,	Bulwer-Lytton	Greifenstein,	Crawford
Rienzi, Last of the Tribunes,	"	Saracinesca,	"
Last of the Barons,	"	Sant' Ilario,	"
Harold, Last of the Saxons,	"	Don Orsino,	"
The Caxtons,	"	Pietro Ghisleri,	"
Pickwick Papers,	Dickens	Don Quixote,	Cervantes
Oliver Twist,	"	Wilhelm Meister	Goethe
Nicholas Nickleby,	"	Corinne,	Stael
Old Curiosity Shop,	"	The Betrothed,	Manzoni
Barnaby Rudge,	"	Consuelo,	Sand
Martin Chuzzlewit,	"	Countess of Rudolstadt,	"
Dombey and Son,	"	Count of Monte Cristo,	Dumas
David Copperfield,	"	The Wandering Jew,	Sue
Bleak House,	"	Hunchback of Notre Dame,	Hugo
Tale of Two Cities,	"	Les Miserables,	"
Jane Eyre,	Bronte	Synnove Solbakken,	Bjornson
Vanity Fair,	Thackeray	Taras Bulba,	Gogol
Pendennis,	"	War and Peace,	Tolstoi
Henry Esmond,	"	Anna Karenina,	"
The Newcombs,	"	Crime and Punishment,	Dostoyevsky
The Virginians,	"	With Fire and Sword,	Sienkiewicz
The Scarlet Letter,	Hawthorne	The Deluge,	"
House of Seven Gables,	"	Jack,	Daudet
The Marble Faun,	"	The Nabob,	"
Uncle Tom's Cabin,	Stowe	Numa Roumestan,	"

A good conscience is a continual Christmas.

Ten Famous Passages of Scripture.

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| 1. Beatitudes. Matthew 5: 3-12. | 6. Ten Commandments. Ex. 20: 3-18. |
| 2. The Lord's Prayer. Matthew 6: 9-13. | 7. Two Great Commandments. Mat. 22: 37-39 |
| 3. Twenty-third Psalm. | 8. Gospel Message. Isaiah 55. |
| 4. Chapter on Love. I Cor. 13. | 9. First Chapter St. John. |
| 5. Nintieth Psalm. | 10. The Magnificat. Luke 1: 46-56. |

Books of Widest Circulation.

The four books that have received the widest circulation are the following:

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|------------------------|-----------------------|
| 1. The Bible. | 3. Don Quixote. |
| 2. Pilgrim's Progress. | 4. Uncle Tom's Cabin. |

MEANING OF COLORS.—White was the emblem of light, religious purity, innocence, faith, joy and life. In the judge, it indicates integrity; in the sick, humility; in the woman, chastity.

Red, the ruby, signifies fire, divine love, heat of the creative power, and royalty. White and red roses express love and wisdom. The red color of the blood has its origin in the action of the heart, which corresponds to, or symbolizes, love.

Blue, or the sapphire, expresses heaven, the firmament, truth from a celestial origin, constancy and fidelity.

Yellow, or gold, is the symbol of the sun, of the goodness of God, of marriage and faithfulness. In a bad sense yellow signifies inconstancy, jealousy and deceit.

Green, the emerald, is the color of the spring, of hope, particularly of the hope of immortality and of victory, as the color of the laurel and palm.

Violet, the amethyst, signifies love and truth, or passion and suffering. Purple and scarlet signify things good and true from a celestial origin.

Black corresponds to despair, darkness, earthliness, mourning, negation, wickedness and death.

Rules of Conduct.

Manners show the man. Our behavior toward others depends upon what we are. Etiquette begins at self. Manners and morals are twin brothers. True politeness goes very deep into the rootwork of character. There is a false politeness, but it is always found out sooner or later. Well-bred people are considerate of the rights and feelings of others, equally courteous to all, and are mindful of the little proprieties of life. Manners cannot be suddenly put on like a garment; they must be acquired by long practice, until all rules become second nature. The following list is a summary of the more important rules of behavior in everyday life. Many of the practices must be modified, according to local usage, which should be followed whenever not strongly objectionable.

IN THE STREET.—Behavior in public places should be quiet and reserved. Acquaintances are greeted with a bow. A man lifts his hat—when bowing

Honors change manners.

to a lady; when walking with a lady he bows to another man; when bowing to a superior in rank or to an elderly man; when bowing to a man who is with a lady; when accompanied by a lady and bowing to her gentlemen acquaintances; when offering any civility to a lady; when bidding good-bye to a lady. A gentleman should not stop a lady to converse on the street. The rule, "keep to the right," should be borne in mind. Courtesy while in a crowd is never out of place. Smoking while on the street is hardly polite. Such tricks as spitting upon the sidewalk, etc., are barbarous. In walking with a lady, a gentleman takes the outside of the walk; if in the evening, he never takes her arm, but offers his own. Do not take more than your share of room when traveling. Food should not be eaten on the street. In street cars, gentlemen should see that ladies or old men are seated.

AT DINNER.—The knife used as little as possible. The fingers should not touch the blade, except when cutting is difficult. The fork is held tines curving downward, and food is conveyed by turning the fork sideways without much movement of the elbows. Liquids are sipped from the side of the spoon. Celery is held in the fingers, green corn likewise. Oranges are usually cut in half and scooped with a spoon. Soft fruits should be touched with the fingers as little as possible. Bread should be broken in pieces, and buttered as it is eaten. A butter knife should be used in cutting butter from the general plate. Eat rather slowly, in small mouthfuls, keeping the lips closed while chewing. Coughing, sneezing, use of handkerchief, picking the teeth, noisy or unpleasant actions, are to be avoided. Do not loll in the chair, or rest on the elbows. Food is not to be carried from the table. Do not drink from the saucer. It is not necessary to eat all upon the plate. It is allowable to take the last piece of bread or cake, as there is supposed to be more. When passing a cup to be refilled, place the spoon in the saucer; when passing a plate, hold knife and fork in the left hand. Dress at the table should be neat, the person clean, the hair in order. The conversation should be light, cheerful and agreeable, without reference to unpleasant subjects of any kind.

On the part of the hostess, the preference of guests as to food and drink should be consulted. Napkins should be furnished. Plates should be well served, but not overloaded. Other persons should never be helped with one's own knife, spoon or fork. The hostess should endeavor to assort dinner guests agreeably to one another, and should see that they are not neglected.

DRESS AND THE TOILET.—Dress should never be conspicuous, avoiding any hint of loudness. While at work, dress according to task at hand. Even in the field or shop the clothes may at least be neat and kept in good repair. No one should attempt to dress beyond his means, or beyond his work in hand. Very elaborate gowns are out of place except at balls and formal receptions. Men wear dress suits only at formal dinners and in the evening (after six o'clock). In general, masculine dress is left to individual good sense.

PERIOD OF FORMAL MOURNING.—A widow wears deep mourning for two years. For a parent, brother or sister, the formal time is one year. For other near relatives, from three to six months. A wife wears mourning for her husband's relatives the same as for her own. The mourning costume should always be lightened by degrees. Persons in mourning are supposed to seclude themselves more or less from public amusements, etc. Of late years the etiquette of mourning has become less formal, and is left more and more to the individual.

CALLS should be after noon, unless by invitation at other times. Evening calls are between seven and nine o'clock. A call is better too short than

too long. Gentlemen should not call upon ladies without first obtaining permission.

INTRODUCTIONS should not be made carelessly nor too freely. Persons of lower rank are presented to those higher, and gentlemen to ladies, after some such manner as the following: "Miss A, may I introduce to you my friend Mr. B?" Then turning to the gentleman, "Mr. B, Miss A." Names should be pronounced distinctly. Handshaking is not expected, but the lady may offer to shake hands if she chooses. Gentlemen, when introduced, bow and usually shake hands. Handshaking should always be cordial and firm, neither too lax nor too vigorous.

THE VISITING CARD is the representation of its owner, and is supposed to fill social spaces in his place. The rules are based upon this idea. The style of cards may be left with a first-class stationer. Cards are left on the occasion of a first call or when the hostess is not at home. Cards should be left personally after a first hospitality, or calls of condolence and in after-dinner calls. In general, cards may take the place of their owner in performing a call, regrets, congratulations, apology, introduction and farewell, etc., but the temptation to overdo with cards should be avoided, and their use requires tact and judgment.

BEFORE WEDDINGS, invitations are issued in the name of the bride's parents or guardian. The bride's family pays all expenses except the fee to the clergyman, a carriage for himself and for the clergyman, and the ring and bouquet for the bride. The costume for a young bride is more commonly of white. The groom wears a dress suit, or, in daytime weddings, a black frock coat and light trousers. During the ceremony the bride stands at the left of the groom, and takes his left arm at the close.

GUESTS entering a parlor or drawing room should first pay respects to the hostess and her assistants. Gentlemen should pay respects to the host also. Guests, on their departure, should take personal leave of their hosts.

IN GENERAL.—It is bad form to gossip, or to encourage gossip; to be uncivil to servants, to pry into the affairs of others, to talk of personalities, to tell secrets, to lose temper when playing games, or to triumph overmuch; to use cheap stationery, and to practice other false economies.

It is well bred to conform to local customs so far as consistent with self-respect. Never laugh at people's defects, injuries or misfortunes, nor scold at their faults. Never pry into the affairs of others or talk of private affairs, or read other people's letters without permission. Such topics as scandals and murders are in poor taste. Talk of yourself but little. Ladies should not discuss other ladies in conversing with gentlemen. Ladies are expected to be careful in deportment, not to lounge, not to stand with arms akimbo or folded. Do not be familiar at short acquaintance. When granting favors, do so cheerfully. In general, regard your own dignity and the rights and wishes of others.

Hints on Letter Writing.

Write distinctly, with especial attention to names.

Unruled paper is considered better taste.

When expecting reply, send stamp for return postage.

Colored inks or lead pencils are not desirable in letter writing.

Bear in mind that all expressions in writing are liable some time to be seen by a third person.

Business letters should be direct, and as brief as is consistent with clearness.

Be ashamed to catch yourself idle.

Letters of friendship should be written in an easy, natural manner, without set phrases, but with care and tact.

Letters which accompany gifts should be brief and simple.

In letters expressing sympathy for misfortune, the writer should strive to realize the state of mind of the sufferer, and should strive at least not to chill or aggravate the recipient. Brevity is desirable in most cases.

THE USE OF CAPITALS.

1. Every entire sentence should begin with a capital.
2. Proper names and adjectives derived from these should begin with a capital.
3. All appellations of the Deity should begin with a capital.
4. Official and honorary titles should begin with a capital.
5. Every line of poetry should begin with a capital.
6. Titles of books and the heads of their chapters and divisions are printed in capitals.
7. The pronoun I, and the exclamation O, are always capitals.
8. The days of the week and the months of the year begin with capitals.
9. Every quotation should begin with a capital letter.
10. Names of religious denominations begin with capitals.
11. In preparing accounts each item should begin with a capital.
12. Any word of very special importance may begin with a capital.

Occupations of Women in the United States.

The ten leading occupations of women are given below, as shown by the census of 1890:—

Dressmakers.....	288,328
Teachers.....	245,371
Agricultural.....	226,427
Laundresses.....	216,631
Seamstresses.....	146,043
Cotton Mill Workers.....	92,965
Clerks and Copyists.....	64,219
Tailoresses.....	63,809
Milliners.....	60,087
Saleswomen.....	58,451

The number of women exceeds the number of men in the following occupations, according to the census of 1890:—

Occupation.	Men.	Women.
Music,	27,636	34,519
Teaching,	96,581	245,371

Occupation.	Men.	Women.
Boardinghouses,	11,756	32,593
Housekeeping,	5,947	86,089
Laundries,	31,831	216,631
Nurses,	6,190	41,396
Servants,	238,152	1,216,639
Typewriting, etc.,	12,148	21,270
Paper box making,	4,714	13,043
Butter making,	1,011	1,590
Corset making,	722	5,800
Cotton mills,	80,177	92,965
Dressmaking,	836	288,328
Glove making,	2,741	3,675
Hosiery making,	8,745	20,810
Millinery,	395	60,087
Sewing,	4,001	140,043
Sewing machines,	1,104	6,022
Shirt makers,	5,132	15,975
Silk mills,	14,192	20,663
Straw working,	1,243	2,423
Umbrella making,	1,465	1,938

Housekeeping Hints.

Punctuality is the soul of housekeeping. In a large household work should be planned in advance for every day and every hour in the day.

Pantries and storerooms should be cleaned out at least once a week. Shelves, where china and glass are kept, should be carefully dusted. Closet, cupboard and pantry doors should be kept shut and locked, so that the cats, rats and mice be excluded.

Basins, pitchers, etc., belonging to chambers should be washed daily in hot water and soap, then rinsed in pure water. Feather beds should

He that talks much talks in vain.

be enclosed in cases that may be removed at intervals. Mattresses should be well aired and dusted.

All blankets and other woolen coverings for beds should be washed at least once a year—the spring is the best time.

Flannels should not be passed from hot water to cold; this will cause them to shrink. Wash and rinse them in milk-warm water, then shake them well.

A good housekeeper will always inspect her teakettle. Water is very apt to be left in the kettle at night, and in the morning it is often filled for breakfast without previously being emptied and rinsed.

When ironing, a damp cloth should be laid under your iron stand, so as to prevent scorching your ironing sheet. Starch should be well boiled with a bit of spermaceti or mutton tallow in it; a small bit of gum arabic will give it a fine gloss. Very little bluing should be used. Soap should be well rinsed out of clothes, particularly those of infants, as it is apt to irritate the skin.

Pots and all other cooking utensils should have water in them before exposure to the fire, as to pour it in after the vessel becomes hot will cause it to crack, if of iron or earthenware; if of tin, it will become unsoldered when very hot.

Clotheslines should be taken in every evening; the weather will mold and rot them. Clothes should be well aired before being taken into the closet.

Flour should always be sifted before being used; so should meal and farinas of all kinds. Flour should be dried for cakes.

Fruit and vegetables should be gathered in the early morning before the heat of the sun becomes great.

Fish, meats and poultry should be well and carefully washed before cooking.

Potatoes, apples, etc., designed for puddings or pies, should be stewed and passed through a hair-sieve or colander.

Milk should be set in a cool place in summer, where it will be safe from dust or insects, but uncovered.

Rice should be carefully divested of any gravel or sand, and washed in several waters, before boiling.

Salt should be kept covered in a dry place.

Cooking Calendar.

This collection of bills of fare is somewhat of a novelty in that it endeavors to arrange the lists with a view to the articles in season at different times of the year, and also to give chiefly recipes which can be easily prepared and for which the materials can be obtained almost anywhere and at low cost. The list will be found convenient to consult when the housewife is at a loss just what to prepare for the next meal. One day's meals are enumerated for each month, also a set of extra dinner menus. With variations such as will readily suggest themselves to suit individual tastes, these will be found very convenient and reliable.

JANUARY.

Breakfast—Oranges, wheat germ meal with cream, omelet, fried potatoes, bread and butter, doughnuts, coffee.

Dinner—Roast turkey, cranberry sauce, mashed potatoes, celery, bread and butter, mince pie, cheese.

Supper—Bread and butter, cold turkey, currant jelly, cake, tea.

Let a good pot have a good lid.

OMELET—Beat the yolks of four eggs till thick, add one-half cup of milk, one-half teaspoonful of salt, and one-fourth teaspoonful of pepper. Beat the whites of the eggs till stiff. Cut and fold them lightly into the yolks till just covered. Turn into hot buttered frying pan, cover it and let stand on back of stove five minutes, or until firm. Fold and serve hot.

EXTRA DINNERS.

1. Chicken soup with crackers, broiled lamb chops, mashed potatoes, canned tomatoes, bread and butter, lemon or apple pie.
2. Fish chowder or vegetable soup, roast beef, gravy, potatoes, turnips, bread and butter, mince pie, cheese.
3. Beefsteak, sweet and white potatoes, onions, bread and butter, plum pudding, apples, walnuts.

FEBRUARY.

Breakfast—Fruit, oatmeal and cream, broiled salt mackerel, baked potatoes, bread and butter, doughnuts, coffee.

Dinner—Boiled ham, white and sweet potatoes, turnips, bread and butter, celery, rice pudding.

Supper—Milk toast, apple sauce, bread and butter, raisin cake, cocoa.

RAISIN CAKE—One cup sugar, two beaten eggs, one-third cup butter, one-half cup milk, one cup raisins, two teaspoonfuls baking powder, flavor with vanilla or nutmeg.

EXTRA DINNERS.

1. Macaroni soup, roast pork, apple sauce, potatoes, turnips, bread and butter, boiled rice with cream, figs and dates.
2. Boiled leg of lamb, with caper sauce, potatoes, turnips, apple fritters, bread and butter, cream pie.
3. Celery soup, roast veal stuffed, potatoes, canned corn, bread and butter, prune pie.

MARCH.

Breakfast—Hominy with cream, sausage, buckwheat cakes, doughnuts, coffee.

Dinner—Broiled beefsteak, parsnips, onions, potatoes, bread and butter, hot apple pie, cheese.

Supper—Apple fritters, bread and butter, canned plums, cake, tea.

APPLE FRITTERS—Make a batter with one cup sweet milk, one teaspoonful sugar, two eggs, whites and yolks beaten separately, two cups flour, one small teaspoonful baking powder. Chop some tart apples, mix in batter, and fry in hot lard same as doughnuts. Serve with maple syrup.

EXTRA DINNERS.

1. Ham and eggs, parsnips, potatoes, pickled beets, bread and butter, apple dumplings.
2. Fried halibut steak, baked potatoes, cold slaw, bread and butter, rice pudding, nuts and raisins.
3. Clam chowder, boiled cod with egg sauce, potatoes, celery, bread and butter, hot apple pie, cheese.

APRIL.

Breakfast—Wheat meal or oatmeal with cream, creamed codfish, buttered toast, doughnuts, coffee.

Dinner—Roast beef, gravy, baked potatoes, canned tomatoes, prune pie.

A place for everything and everything in its place.

Supper—Cold sliced beef, quince jelly, bread and butter, chocolate cake, cocoa.

DOUGHNUTS—Two tablespoonfuls sweet cream, fill up cup with sour milk, $1\frac{1}{2}$ cups sugar, 1 egg, 1 teaspoonful baking powder, $\frac{1}{2}$ teaspoonful soda, nutmeg. Fry in boiling hot lard.

EXTRA DINNERS.

1. Roast chicken, gravy, mashed potatoes, onions boiled in milk, bread and butter, charlotte russe.

2. Vegetable soup, veal cutlets and gravy, potatoes, asparagus, bread and butter, tapioca pudding.

3. Baked shad, boiled potatoes, lettuce served with mayonnaise, cucumbers, bread and butter, bananas.

MAY.

Breakfast—Quaker oats with cream, egg toast, cold sliced meat, doughnuts, coffee.

Dinner—Baked shad, potatoes, cold slaw, asparagus, bread and butter cottage pudding.

Supper—Hot rolls, dried beef, canned cherries, cake, chocolate.

EGG TOAST—Beat two eggs, add salt and milk. Soak sliced bread in this until soft. Brown the bread on a hot buttered griddle.

EXTRA DINNERS.

1. Mutton soup, beef stew with dumplings, lettuce, potatoes, bread and butter, rhubarb pie.

2. Smothered beef, asparagus, baked potatoes, lettuce, bread and butter, baked custard.

3. Potato soup, corned beef, spinach, cabbage, potatoes, bread and butter, bananas.

JUNE.

Breakfast—Minced ham on toast, warmed potatoes, bread and butter, fried Indian mush with maple syrup, doughnuts, coffee.

Dinner—Roast of lamb, gravy, peas, potatoes, bread and butter, strawberry shortcake.

Supper—Potato salad, cold pressed beef, hot biscuit, strawberries, coconut cake, tea.

POTATO SALAD—Boil the potatoes so that they will hold together when warm; slice thin and pour over mayonnaise dressing, carefully mixing with a fork.

EXTRA DINNERS.

1. Baked mackerel with cream gravy, green peas, potatoes, bread and butter, strawberry shortcake.

2. Asparagus soup, roast lamb, potatoes, green peas, bread and butter, cherry pudding.

3. Mutton soup, broiled beefsteak, lettuce, green peas, bread and butter, strawberries.

JULY.

Breakfast—Cherries, ham and eggs, fried potatoes, hot rolls, doughnuts, coffee.

Dinner—Soup, veal cutlets, peas, potatoes, bread and butter, cherry pudding, strawberry ice cream.

Scatter with one hand, gather with two.

Supper—Lobster salad, thin bread and butter, raspberries, cocoa.

STRAWBERRY ICE CREAM—Sprinkle sugar over the berries. Mash and rub through a fine sieve. Use one pint of juice to two quarts of cream or custard. Sweeten to taste. Freeze.

EXTRA DINNERS.

1. Roast veal, gravy, spinach, mashed potatoes, stewed tomatoes, bread and butter, coffee ice cream.

2. Soup, baked bluefish, potatoes, sliced tomatoes, bread and butter, cucumbers, berry pie.

3. Chicken pot pie, potatoes, string beans, mayonnaise of lettuce, bread and butter, raspberry sherbet.

AUGUST.

Breakfast—Muskmelons, California breakfast food, baked beans and brown bread, doughnuts, coffee.

Dinner—Fricasseed chicken, sweet and white potatoes, string beans, bread and butter, berry pie, cheese.

Supper—Hot biscuit, baked pears, plain cake, tea.

FRICASSEED CHICKEN—Wash and cut up a young chicken. Boil in salted water with small pieces of salt pork until tender, letting the water nearly all boil out. When done, carefully remove chicken, and pour into the kettle one cup cream, or half cream and half milk may be used, adding a little flour to thicken. Turn this over the chicken and serve hot.

EXTRA DINNERS.

1. Green pea soup, pot roast, potatoes, green corn, cucumbers, berry pie, watermelon.

2. Corn soup, boiled ham, mashed potatoes, stuffed egg plant, lettuce, bread and butter, chocolate ice cream.

3. Beef stew with dumplings, potatoes, corn on cob, cucumbers, bread and butter, blueberry pudding.

SEPTEMBER.

Breakfast—Wheat germ with cream, lamb chops, baked potatoes, doughnuts, coffee.

Dinner—Beef soup with crackers, pot roast, potatoes, lima beans, corn on cob, bread and butter, cocoanut pudding.

Supper—Bread and butter, peaches and cream, cream cake, chocolate.

CREAM CAKE—One cup sugar, $\frac{1}{2}$ cup milk, 3 tablespoonfuls butter, 2 eggs, 2 teaspoonfuls baking powder. Flour. Bake in jelly tins in hot oven. Filling: One teacupful sweet cream whipped with white of an egg beaten until stiff. Add 3 tablespoonfuls sugar and a little vanilla.

EXTRA DINNERS.

1. Soup, broiled beefsteak, potatoes, lima beans, cucumbers, bread and butter, peach pudding.

2. Fried swordfish, steak, pork steak or lamb chops, potatoes, corn, bread and butter, peaches and cream, cake.

3. Beef soup with crackers, scalloped beef, squash, tomatoes, bread and butter, peach pie.

OCTOBER.

Breakfast—Grapes, hash, griddle cakes and maple syrup, doughnuts, coffee.

Dinner—Macaroni soup, corned beef, cabbage, beets, turnips, parsnips, bread and butter, custard pie, bananas, or grapes and pears.

Hunger is the best sauce.

Supper—Chicken salad, bread and butter, quince sauce, cake, tea or cocoa.

CHICKEN SALAD—Cut the white meat of chicken in small pieces. Chop celery fine and use one-half as much celery as chicken. Dressing: One egg, 1 gill vinegar, 1 tablespoonful olive oil, $\frac{1}{2}$ tablespoonful sugar, salt, pepper. Boil the whole together until it thickens and when cold mix with chicken and celery, and garnish with hard-boiled eggs and celery tops.

EXTRA DINNERS.

1. Baked bluefish, or roast beef, oyster fritters, boiled potatoes, sliced tomatoes, bananas and grapes.

2. Corn beef, cabbage, potatoes, beets, bread and butter, apple sago pudding.

3. Macaroni soup, lamb chops, sweet and white potatoes, lima beans, bread and butter, Washington pie.

NOVEMBER.

Breakfast—Wheat germ meal with cream, baked potatoes, liver and bacon, hot rolls, doughnuts, coffee.

Dinner—Steamed clams, boiled fish, sweet and white potatoes, rice pudding.

Supper—Oyster stew, crackers, grape marmalade, bread and butter, cake, tea.

BOILED SALMON, or other large fish. Sew the salmon in a linen cloth and boil about fifteen minutes to a pound. When soft put it onto a hot platter and pour over it half a pint of heated cream in which has been stirred salt, butter and half a gill of water in which the fish was boiled. Garnish with parsley and sliced hard boiled eggs.

EXTRA DINNERS.

1. Rabbit pie, mashed potatoes, squash, celery, bread and butter, rice pudding.

2. Mutton soup, roast veal, gravy, curried rice, sweet and white potatoes, parsnips, bread and butter, hot apple pie and cheese.

3. Barley broth, mutton chops, baked potatoes, canned peas, bread and butter, oranges.

DECEMBER.

Breakfast—Oranges, oatmeal with cream, liver and bacon, baked potatoes, hot gems, doughnuts, coffee.

Dinner—Macaroni soup, roast duck, cranberry sauce, celery, mashed potatoes, sweet potatoes, currant jelly, plum pudding, ice cream, sponge cake, fruit, nuts, coffee.

Supper—Thin bread and butter, cut-up oranges or apple sauce, seed cakes, tea.

SEED CAKES—One cup butter, 2 cups sugar, 1 cup milk, 1 tablespoonful seeds, $1\frac{1}{2}$ teaspoonfuls baking powder, flour to roll thin.

EXTRA DINNERS.

1. Vermicelli soup, broiled beefsteak, potatoes, squash, bread and butter, mince pie, cheese.

2. Roast beef, gravy, canned corn, mashed potatoes, bread and butter, orange shortcake, or apple pudding.

3. Potato soup, cold turkey, baked potatoes, cranberry sauce, bread and butter, squash pie, cheese.

Silks and satins put out the kitchen fire.

Cooking Recipes.

GOOD FRUIT CAKE—Four cups flour, two of sugar, one of butter, four eggs, one-half pound of raisins, one-half pound of citron, one cup of milk, a small teaspoonful of soda.

RAISED CAKE—Five cups of flour, one of butter, one-half cup of yeast, three cups of milk. Rub the butter into the flour, add milk and yeast, and set it to rise; when risen, work in the sugar, add spice to taste; when raised, put in with a fork one cup of floured raisins.

SUGAR CAKES—One pint dry flour, one-half a pint of butter, one-half of sugar, mix the flour and sugar, rub in the butter, add an egg beaten with enough milk to moisten the whole; roll thin and bake in a quick oven. This recipe is for those who have few eggs or none.

POTATO SALAD—A most delicious dish may be made in the following manner: Cut eight or ten good-sized cold boiled potatoes in very thin slices; chop half a small onion and a good-sized apple very fine; pick the leaves from a large handful of green parsley, rinse and chop them. Spread a layer of the potato in a chopping tray, sprinkle liberally with salt, then half the parsley, apple and onion; then the rest of the potato, more salt, and the other half of the parsley, apple and onion. Pour over the whole a half cup of the best sweet oil or melted butter, and two-thirds of a cup of vinegar. Mix the whole carefully, so as not to break the potatoes; put in a deep dish and garnish with parsley. Suitable for lunch or tea.

TO BAKE BEANS—Pick them over carefully, soak them over night in plenty of water, in the morning parboil till soft, then skim them out into an earthen pot, salt to taste, cover with water, score a piece of fat salt pork, put in the top of the pot, cover the whole with a tight tin cover or a crust of pie paste, and bake slowly six hours.

TAPIOCA PUDDING—Dissolve a teacupful of tapioca in a quart of water over night. In the morning pour off the water, and boil it in a quart of milk, with two teacupfuls of sugar. Pare and core eight apples, filling the opening with a lump of sugar and a bit of cinnamon; put in a baking dish and pour the tapioca over them. Bake two hours; serve cold.

CHOCOLATE CAKE—Two cups of powdered sugar, one cup of butter mixed with the sugar until it is a perfect cream, then add the yolks of five eggs and the whites of three beaten to a stiff froth; one cup of milk, one-half teaspoonful soda, one teaspoonful cream tartar, three and a half cups sifted flour.

CHOCOLATE FILLING FOR THE CAKE—One-half cake of Baker's chocolate grated fine, one cup of sugar, one egg, milk enough to moisten, let all boil together until quite thick, flavor with vanilla and spread while hot between the cakes, which should be baked in jelly pans.

FRUIT PUDDING—Chop six apples fine, grate six ounces of stale bread, add six ounces of brown sugar, six ounces of currants, washed carefully and floured. Mix all well together with six ounces of butter, a cup of milk and two cups of flour in which two teaspoonfuls of baking powder have been thoroughly mixed. Spice to taste. If necessary, add more milk in mixing. Put in a pudding bag, tie loosely, and boil three hours. This pudding should be eaten with cream sauce.

ICE CREAM—Take a tin pail holding a gallon, and fill it half full of sweet milk, cream and all. This will be sufficient for six or eight persons. Into this put about a teacupful of white sugar and three or four tablespoonfuls of extract of lemon. These quantities may be varied to suit the taste. If you want it very rich add a couple of eggs, well beaten, as for cake; but ordinary stomachs will find the milk and its cream sufficiently rich. Then take a piece

Want of care is worse than want of knowledge.

of ice and put it in a wooden pail and shave it with an axe, aiming to get it as fine as possible, though some of it may be as coarse as hickory nuts. Fill the pail two-thirds full of ice, and add about a quart of rock salt; this is best, but fine salt will do. Stir it thoroughly and pour it into another dish, leaving a little in the bottom of the pail. Upon this set the tin pail and fill in the space firmly with the ice and salt, being careful not to get any into the cream. In a very few minutes it will begin to freeze on the bottom and sides of the pail. It should be stirred as it freezes, which will make it foamy somewhat, and of even temperature. In a little while you will have an article that may appear upon the tea table, and that is both enjoyable and refreshing.

GEMS OR IRON-CLADS—Stir graham flour into soft, cold water, making a batter a trifle thicker than for griddle-cakes. Drop from a spoon into the cups of the bread-pans, which are already heated, and bake in a hot oven. Take them from the pan as soon as they are done and arrange them on plates, taking care that no weights rest on them to make them heavy. These, after standing two or three days, are made as good as new by dipping in cold water and setting in a hot oven a few minutes, or steaming over boiling water. All cakes of this kind are lighter and more delicate by being beaten ten or fifteen minutes while mixing the batter, but it is not necessary in order to make good bread.

MUSTARD—Take of best flour of mustard, 2 lbs; fresh parsley, $\frac{1}{2}$ oz; chervil, $\frac{3}{4}$ oz.; celery, $\frac{3}{4}$ oz.; Tarragon, $\frac{3}{4}$ oz.; garlic, 1 clove; and 12 salt anchovies (all well chopped); grind well together; add of salt 1 oz., and sufficient grape juice or sugar to sweeten, with sufficient water to form the mass into a thinnish paste by trituration in a mortar. When put into pots, a red-hot poker is to be thrust into each, and a little vinegar afterward poured upon the surface.

BAKED INDIAN PUDDING—Scald a quart of milk, and while boiling thicken it with a pint of corn meal, remove from the fire, thin with cold milk to the consistency of batter, add two well-beaten eggs, a cup of raisins, sugar to taste, a little salt, cinnamon or nutmeg, and bake two or three hours in a moderate oven.

RYE CAKES—To one teacup of white sugar add two well-beaten eggs, a piece of butter the size of an egg, one quart of milk. Mix thoroughly with a quart of rye meal, two teaspoonfuls cream tartar and one of soda; stir this into the milk and eggs, and add enough more to make a thick batter. Drop on a well-greased pan and bake half an hour.

CHESTNUT PUDDING—Peel off the shells with a sharp knife, cover the kernels with water, and boil till their skin readily peels off. Then pound them in a mortar, and to every cup of chestnuts add three cups of chopped apple, one of chopped raisins, one-half cup of sugar, and one cup of water. Mix thoroughly, and bake until the apple is tender—about half an hour. Serve cold.

HOW TO SELECT FLOUR—Look at its color; if it is white, with a slightly yellowish or straw-colored tint, it is a good sign. If it is very white, with a bluish cast with white specks in it, the flour is not good. Examine its adhesiveness; wet and knead a little of it between the fingers; if it works dry and elastic it is good; if it works soft and sticky it is poor. Flour made from spring wheat is likely to be sticky. Throw a little lump of dry flour against a dry, smooth, perpendicular surface; if it adheres in a lump, the flour has life in it; if it falls like powder it is bad. Squeeze some of the flour in your hands; if it retains the shape given by the pressure, that, too, is a good sign. Flour that will stand all these tests it is safe to buy.

Good sense is needed by all, possessed by few, and wanted by none.

CORNMEAL PUDDING—Two pints meal, one pint grated bread, one of molasses, one of brown sugar, one of sour milk, two tablespoonfuls butter, a half teaspoonful of ginger and two of cinnamon, three eggs, half a teaspoonful of soda; slice soft, juicy apples, and add one teacupful, if liked; bake half an hour. Sauce—cream and sugar.

JELLY CAKE—One cup butter, one cup sugar, four eggs, one and a half cups flour. Beat the eggs separately.

GRANDMOTHER'S GINGERBREAD—A cup and a half of molasses, cup of rich sour cream, teaspoonful of saleratus, teaspoonful of ginger. Mix a little stiff.

CLOVE CAKE—One cup molasses, one cup sugar, one cup butter, one cup buttermilk, three eggs, three cups flour, one tablespoonful cloves, one of cinnamon, one teaspoonful saleratus in milk, raisins.

BEEF STEW—Six pounds of the flank of beef, cut in small pieces; boil in two quarts of water until tender. Then put in a dozen potatoes, a dozen onions and four turnips. Cover it so that the steam shall not escape. Salt and pepper to taste.

APPLE BREAD—Weigh one pound of fresh juicy apples; peel, core and stew them into a pulp, being careful to use a porcelain kettle, or a stone jar placed inside a kettle of boiling water; mix the pulp with two pounds of the best flour; put in the same quantity of yeast you would use for common bread, and as much water as will make it a fine, smooth dough; put it into a pan and place it in a warm place to rise, and let it remain for twelve hours at least. Form it into rather long-shaped loaves, and bake in a quick oven.

STEWED SHOULDER OF MUTTON—The shoulder must not be too fat. Bone it, tie it up in a cloth, and boil it for two hours and a half. Take up, put a little cold butter over it and strew it thickly with bread crumbs, parsley and thyme, pepper and salt, all properly mixed. Let it be in the oven half an hour, so that it may be perfectly browned. Serve it with lumps of currant jelly on the top and gravy or spinach round the dish.

MUFFINS OF STALE BREAD—In every family bread is apt to accumulate, and the good economist always manages to dispose of it in some useful way before it molds. The following recipe teaches the easiest way of making such a disposition, and will be found reliable: Take a quart loaf of bread, slice it, and put it in a bowl, and pour on sufficient water to cover, and let it stand until well soaked; then press the water from it, and mash the bread until no lumps remain. Add two thoroughly beaten eggs, two tablespoonfuls of flour, one of melted butter or lard, a little salt, a very small portion of soda (unless the bread or milk is sour, when more will be required), and milk enough to make it into a stiff batter. Bake in muffin rings or drop from a spoon upon a griddle.

CABBAGE SALAD—Shave a hard white cabbage into small white strips; take the yolks of three well-beaten eggs, a cup and a half of good cider vinegar, two teaspoonfuls of white sugar, three tablespoonfuls of thick cream, one teaspoonful of mustard mixed in a little boiling water; salt and pepper to suit the taste. Mix all but the eggs together and let it boil; then stir in the eggs rapidly; stir the cabbage into the mixture, and stir well. It keeps perfectly, and is an excellent relish to all kinds of meat.

OATMEAL MUSH—Into one quart of boiling water stir a teaspoonful of salt and sufficient oatmeal to make a thin pudding. Stir rapidly to prevent scorching, and when it is just thick enough to keep its shape dip out into a bowl or deep dish, and in a few moments it can be turned onto a plate.

This is a nice breakfast dish eaten warm with butter and sugar; or, when cold, with cream and sugar. For variety, at dinner, we sometimes use a dressing similar to that made for dumplings, with the addition of a tablespoonful of strawberry preserves, or a little juice of some acid fruit.

APPLE SNOW—Pare and core eight or ten tart, juicy apples; boil them in water sufficient to cover them, till they are soft, taking care to keep them whole; then remove them from the stew pan, making a syrup of nice, white sugar, and replace them; let them simmer slowly till they are amber-colored, then place in a glass preserve dish; beat to a stiff froth the whites of eight eggs and two-thirds of a cup of sugar, and spread over the top. It is improved by being kept on ice, and is grateful to the eye and palate, either for dessert or for tea. The yolks of the eggs may be used in making a boiled custard.

BOSTON BROWN BREAD—Scald thoroughly three pints of corn meal, add a half pint of molasses and water or milk enough to make a thin batter; into this stir a quart of sifted rye meal (not rye flour) in which two teaspoonfuls of yeast powder have been mixed; add salt and do not have the dough very stiff. Put in a pudding pan with a tight cover; set into a kettle of boiling water and boil three hours, renewing the water as fast as it wastes and keeping it constantly at 212 degrees. If yeast is used to raise the bread instead of yeast powder, or soda and cream tartar, the dough must set till it begins to rise. Sour milk or buttermilk and soda may be used instead of yeast. Thus boiled or steamed, it has no crust, and is a most delicious dish for a hungry man.

ROAST PIG—Three or four weeks is the right age to roast whole. Cut off the toes, leaving the skin long to wrap around the ends of the legs, and put it in cold water. Make a stuffing of five or six powdered crackers, one tablespoonful of sage, two of summer savory, one chopped onion, half a pint of cream, two eggs, pepper and salt. Mix these together, and stew about fifteen minutes. Take the pig from the water, fill it with the stuffing, and sew it up. Boil the liver and heart with five peppercorns, and chop fine for the gravy. Put the pig to roast with a pint of water and a tablespoonful of salt. When it begins to roast, flour it well and baste it with the drippings. Bake three hours.

Table of Digestibility of Food.

FISH.					
<i>Difficult of Digestion.</i>			<i>Easy of Digestion.</i>		
Anchovies.	Hake.	Mussels.	Dace.	Oysters.	Turbot.
Conger Eel.	Haddock.	Salmon.	Eels (stewed).	Sole.	Whiting.
Crab.	Lobsters.	Skate.	Mullet.		
Flounders.	Mackerel.				
POULTRY AND GAME.					
Duck.	Hare.	Rooks.	Fowl.	Partridge.	Venison.
Goose.	Rabbit.	Turkey.	Grouse.	Snipe.	Woodcock.
MEAT.					
Bacon.	Pork (especially roast).	Suet.	Mutton.	Lamb.	Tripe.
Beef (salt).		Veal.	Calves' Feet.	Calves' Head.	Brains.
VEGETABLES.					
Beets.	Cucumber.	Potatoes.	Asparagus.	Potatoes.	Spinach.
Cabbage.	Horseradish.	(boiled).	Brussels.	(baked).	Vegetable
Carrots.	Lettuce.	Radishes.	Sprouts.	Rice (boiled).	Marrow.
Celery (raw).	Parsnips.	Turnips.	Leeks.	Seakale.	Watercress.
FRUIT.					
Almonds.	Figs.	Nectarines.	Bananas.	Greengages.	Pears.
Apricots.	Grapes.	Pineapples.	Cherries.	Lemons.	Prunes.
Chestnuts.	Melons.	Plums (all).	Gooseberries.	Medlars.	Strawberries.
Currants.	Nuts (all).	Raisins.			

Summer Drinks.

The following are not only simple and cheap beverages, but are also very pleasant and healthful.

COMMON SMALL BEER—Add to a pailful of water a handful of hops, a pint of bran, half pint of molasses, a cup of yeast, and one large spoonful of sugar.

MOLASSES BEER—To six quarts of water add two quarts of molasses, half a pint of yeast, two spoonfuls of cream tartar. Having stirred thoroughly, add the grated peel of a lemon. Bottle after standing for twelve hours.

HARVEST DRINK—Mingle together five gallons of pure water, half a gallon molasses, one quart of vinegar, and two ounces of powdered ginger. This drink is very invigorating, and is the same thing as "Western Cider," the recipe of which has been selling for a high price through the country.

GINGER BEER—To a pail half filled with boiling water add one pint of molasses and two spoonfuls of ginger; when well stirred, fill the pail with cold water, leaving room for one pint of yeast, which must not be put in until the preparation becomes lukewarm. Place it on a warm hearth for the night, and bottle in the morning.

WHITE SPRUCE BEER—Mix together three pounds of loaf sugar, five gallons of water, a cup of good yeast, adding a small piece of lemon peel, and enough of the essence of spruce to give it flavor. When fermented, preserve in close bottles. Molasses or common brown sugar can be used, if necessary, instead of loaf, and the lemon peel left out. Sometimes, when unable to obtain the essence of spruce, we have boiled down the twigs. This will be found a delightful home drink.

ROOT BEER—Mix together a small amount of sweet fern, sarsaparilla, wintergreen, sassafras, Prince's pine and spicewood. Boil them with two or three ounces of hops and two or three raw potatoes, pared and sliced, in three or four gallons of water. After boiling five or six hours, strain off the liquor, and add to it common molasses in the proportion of one quart to three gallons of the beer. If it is too thick, dilute it with water. A half pound of browned bread added to the liquor will increase its richness.

CREAM SODA—To one gallon of water add five pounds of loaf sugar, one ounce Epsom salts, one ounce cream tartar, and five ounces tartaric acid. Boil the preparation well, skimming off the refuse matter accumulating upon the surface. After cooling, set it away in bottles in a cool place. When desiring soda drinks, put two or three tablespoonfuls of this syrup into a tumbler two-thirds full of water, and one-fourth of a teaspoonful of super-carbonate of soda; stir briskly, and the effervescence will be equal to that from fountain soda. The Epsom salts, cream of tartar, tartaric acid and super-carbonate of soda can be purchased for a small sum at any drug store.

TO CLEAN A CRAPE SHAWL—Wash it in warm suds made of white soap dissolved; rub the spots gently, so as not to injure the texture; rinse in blue water and twice in clear lukewarm water, and pin it to dry.

HARD SOAP—Take six pounds of sal soda, six pounds grease, three and a half pounds new stone lime, four gallons soft water, half pound borax. Put soda, lime and water into an iron boiler; boil till all is dissolved. When well settled, pour off the clear lye, wash out the kettle, and put in the lye, grease and borax; boil till it comes to soap, pour into tub to cool, and when sufficiently hard, cut into bars and put on boards to dry. This is very nice for washing white flannel and calico.

TO REMOVE BLACK LEAD from polished steel sides of a grate, first wash them with strong soap and water, using old flannel for the purpose; then rub them with sweet oil and rotten stone; polish in the usual manner with soft leather.

Pride and the gout are seldom cured throughout.

Methods of Dyeing.

RECIPES FOR ONE POUND OF GOODS.

YELLOW ON COTTON—Two oz. sugar of lead, dissolved in hot water in a tin vessel; put in goods, let them remain 30 minutes. Then dissolve 1 oz. bichromate potash in hot water in a brass vessel, and immerse cloth 30 minutes.

YELLOW ON WOOLEN—Three oz. alum, 1 oz. madder compound; dissolve alum in small quantity of hot water, then add the compound and mix well. Boil 8 oz. fustic one hour in a sufficient quantity of water, then take out the fustic and put in the alum compound. Boil for a few minutes, then put in the woollen one hour while boiling; air and rinse well.

BLUE ON COTTON—Dissolve $1\frac{1}{2}$ oz. copperas in hot water; keep goods in an hour, then rinse. Dissolve $\frac{1}{2}$ oz. of prussiate of potash with one drachm of oil vitriol in hot water, and keep goods one hour; stir frequently.

BLUE ON WOOLEN—Alum $2\frac{1}{2}$ oz., cream tartar $1\frac{1}{2}$ oz. Dissolve in water, and boil the goods in the solution for one hour; then throw the goods in warm water which has more or less indigo compound in it, according to the shade of color desired. This is easily made and permanent.

BLACK ON WOOLEN OR COTTON—Dissolve in water 1 oz. extract of logwood and half an ounce of powdered blue vitriol; put in the yarn, boil 20 minutes, take out and rinse.

ORANGE ON COTTON—After your goods are taken from the yellow dye No. 1, and before they are rinsed, dip them in weak lime water until the desired shade is obtained, then rinse.

ORANGE ON WOOLEN—Take 4 oz. quercitron, and $1\frac{1}{2}$ oz. lac dye; wet them thoroughly with hot water, add $1\frac{1}{2}$ oz. madder compound. Prepare in your kettle a sufficient quantity of water, and when near boiling add the quercitron, lac, etc., to the liquor, and boil ten minutes. Boil the goods an hour, then air and rinse.

GREEN ON COTTON—Take 5 oz. fustic and one drachm extract logwood; boil two hours and add one drachm blue vitriol. Color in brass. After it is colored, dry, then wash in strong suds.

GREEN ON WOOLEN—Add to sufficient water to cover the goods 1 oz. powdered alum; scald the goods therein, then put in half a pound of fustic and boil half an hour, stirring frequently; then take out the goods and hang them up; mix with the dye a sufficient quantity of indigo compound to produce the shade desired; put in the goods and let them remain 20 minutes.

SCARLET ON SILK OR WOOLEN—To 3 gallons of warm water add 1 oz. cream tartar, 1 oz. powdered cochineal and 2 oz. solution of tin. Wet the goods in warm water, and when the dye boils put in the goods and boil one hour, frequently stirring them; then take out the goods and rinse in cold water.

MADDER RED—To $\frac{1}{2}$ pound madder, soaked over night in brass or copper, add 1 oz. solution of tin. Then add your cloth and bring slowly to a scalding heat; leave it in the dye according to the shade of color you wish, then rinse in soft, clear water.

PINK OR RED ON COTTON—One pound Brazil wood, steep well and strain; then add one ounce solution of tin; wet your goods, letting them remain a short time, according to the color desired, and dry in the shade.

BROWN ON COTTON OR WOOLEN (Permanent)—To $\frac{1}{4}$ pound of cutch add one-half pail of water, no more goods than can be thoroughly wet in the same. Dissolve 2 oz. bichromate potash in same amount of water. Dip from one into the other until you get the right shade of color, and rinse.

PURPLE OR LILAC—Dissolve 2 oz. of cudbear with gentle heat in suffi-

It's ill wool that will take no dye.

cient water to cover the goods. First dip the goods in saleratus water, wring them and pour in the dye; let it soak half an hour. If you wish it darker, wring again and wet in the saleratus water, then again in the dye, and add two ounces of alum.

SALMON COLOR—Is obtained by boiling Annatto in soapsuds or pearlash water, and dipping the goods until the desired color is obtained. Be sure to get the best Spanish Annatto.

To DYE WOOL BLACK—According to the following recipe, the dye does not rub off, the fibers remain loose, and the wool has a desirable reddish cast: Boil the thoroughly washed wool well for an hour and a half in a bath composed, for 100 lbs. of wool, of $2\frac{1}{2}$ lbs. of chromate of potash, $2\frac{1}{2}$ lbs. of alum, $\frac{1}{2}$ lb. blue vitriol, and 2 lbs. of commercial sulphuric acid, and dye it, without rinsing, in fresh water, with 20 lbs. of logwood and 20 lbs. of Brazil wood. It is advantageous for the color to allow the wool to remain in the mordant for 12 hours.

Hints for Accidents and Emergencies.

DROWNING—1. Loosen clothing, if any. 2. Empty lungs of water by laying body on its stomach, and lifting it by the middle so that the head hangs down. Jerk the body a few times. 3. Pull tongue forward, using handkerchief, or pin with string, if necessary. 4. Imitate motion of respiration by alternately compressing and expanding the lower ribs, about twenty times a minute. Alternately raising and lowering the arms from the sides up above the head will stimulate the action of the lungs. Let it be done gently but persistently. 5. Apply warmth and friction to extremities. 6. By holding tongue forward, closing the nostrils, and pressing the "Adam's apple" back (so as to close entrance to stomach), direct inflation may be tried. Take a deep breath and breathe it forcibly into the mouth of patient, compress the chest to expel the air, and repeat the operation. 7. Don't give up! People have been saved after hours of patient, vigorous effort. 8. When breathing begins, get patient into a warm bed, give warm drinks, or spirits in teaspoonfuls, fresh air and quiet.

BURNS AND SCALDS—Cover with cooking soda and lay wet cloths over it. Whites of eggs and olive oil. Olive oil or linseed oil, plain, or mixed with chalk or whiting. Sweet or olive oil and limewater.

LIGHTNING—Dash cold water over a person struck.

SUNSTROKE—Loosen clothing. Get patient into shade and apply ice-cold water to head. Keep head in elevated position.

MAD DOG OR SNAKE BITE—Tie cord tight above wound. Suck the wound and cauterize with caustic or white-hot iron at once, or cut out adjoining parts with a sharp knife. Give stimulants, as whisky, brandy, etc.

STINGS OF VENOMOUS INSECTS, ETC—Apply weak ammonia, oil, salt water or iodine.

FAINTING—Place flat on back, allow fresh air, and sprinkle with water. Place head lower than rest of body.

TESTS OF DEATH—Hold mirror to mouth. If living, moisture will gather. Push pin into flesh; if dead the hole will remain, if alive it will close up. Place fingers in front of a strong light. If alive, they will appear red; if dead, black or dark.

CINDERS IN THE EYE—Roll soft paper up like a lamplighter, and wet the tip, to remove; or use a medicine dropper to draw it out. Rub the other eye.

FIRE IN ONE'S CLOTHING—Don't run, especially not downstairs or out of

—
Resolve slowly, act swiftly.

doors. Roll on carpet, or wrap in woolen rug or blanket. Keep the head down, so as not to inhale flame.

FIRE IN A BUILDING—Crawl on the floor. The clearest air is the lowest in the room. Cover head with woolen wrap, wet if possible. Cut holes for the eyes. Don't get excited.

FIRE FROM KEROSENE—Don't use water, it will spread the flames. Dirt, sand or flour is the best extinguisher, or smother with woolen rug, tablecloth or carpet.

SUFFOCATION FROM INHALING ILLUMINATING GAS—Get into the fresh air as soon as possible and lie down. Keep warm. Take ammonia—twenty drops to a tumbler of water, at frequent intervals; also, two to four drops tincture of nux vomica every hour or two for five or six hours.

Poisons and Their Antidotes.

In case of poisoning, first send for a physician. Second, induce vomiting by tickling throat with feather or finger. Drink hot water or strong mustard and water. Swallow sweet oil or whites of eggs. Acids are antidotes for alkalies, and *vice versa*. Following is a list of various poisons and antidotes.

Poison.	Antidote.
Acids, muriatic, oxalic, acetic, sulphuric (oil of vitriol), nitric (aqua fortis).	Soapsuds, magnesia, lime water.
Prussic acid.	Ammonia in water, dash water in face.
Carbolic acid.	Flour and water, mucilaginous drinks.
Alkalies, such as potash, lye, hartshorn, ammonia.	Vinegar, or lemon juice in water.
Arsenics, rat poison, Paris green.	Milk, raw eggs, sweet oil, lime water, flour and water.
Bug poison, lead, saltpeter, corrosive sublimate, sugar of lead, blue vitriol.	Whites of eggs or milk in large doses.
Chloroform, chloral, ether.	Dash cold water on head and chest. Artificial respiration. Piece of ice in rectum. No chemical antidote.
Carbonate of soda, copperas, cobalt.	Soapsuds and mucilaginous drinks.
Iodine, antimony, tartar emetic.	Starch and water. Astringent infusions.
Mercury and its salts.	Strong tea, tannin.
Nitrate of silver, lunar caustic.	Whites of eggs, milk, mucilages.
Opium, morphine, laudanum, paregoric, soothing powders or syrups.	Salt and water.
Strychnine, tincture of nux vomica.	Strong coffee, hot bath. Keep awake and moving at any cost.
	Mustard and water, sulphate of zinc. Absolute quiet. Plug the ears.

Easy Methods to Reckon Interest.

First point off two places in the principal, and multiply it by the time expressed in months. The result gives the interest at 12 per cent. Then, for the interest at six per cent, divide by two; for four per cent, divide by three; for three per cent, divide by four; for other rates divide by 11, and multiply by the rate per cent.

OTHER RULES.

Four per cent, multiply the principal by the number of days to run; separate the right-hand figure from the product and divide by nine.

Five per cent, multiply by number of days, and divide by 72.

Six per cent, multiply by number of days, separate right-hand figure, and divide by six.

Discontent makes rich men poor; content makes poor men rich.

Seven and three-tenths per cent, multiply by number of days, and double the amount so obtained. On \$100 the interest is just two cents per day.

Eight per cent, multiply by number of days, and divide by 45.

Nine per cent, multiply by number of days; separate right-hand figure, and divide by four.

Ten per cent, multiply by number of days, and divide by 36.

Twelve per cent, multiply by number of days; separate right-hand figure, and divide by three.

Investment Table.

Rate of interest on Stock Investments, par value being \$100, paying interest or dividends at rate of—

Price Paid,	3 Per Cent.	4 Per Cent.	5 Per Cent.	6 Per Cent.	7 Per Cent.	8 Per Cent.	10 p'r Cent.
	6.	8.	10.	12.	14.	16.	20.
50							
55	5.45	7.27	9.09	10.90	12.72	14.54	18.18
60	5.	6.66	8.33	10.	11.66	13.33	16.66
65	4.61	6.15	7.69	9.23	10.76	12.30	15.38
70	4.28	5.71	7.14	8.57	10.	11.43	14.28
71	4.22	5.63	7.04	8.45	9.85	11.26	14.08
72	4.16	5.55	6.94	8.33	9.72	11.11	13.89
73	4.10	5.47	6.84	8.21	9.58	10.95	13.69
74	4.05	5.40	6.75	8.10	9.45	10.80	13.51
75	4.	5.33	6.66	8.	9.33	10.66	13.33
80	3.75	5.	6.25	7.50	8.75	10.	12.50
83	3.61	4.81	6.02	7.22	8.43	9.63	12.04
85	3.52	4.70	5.88	7.05	8.23	9.41	11.76
87	3.44	4.59	5.74	6.89	8.04	9.19	11.49
90	3.33	4.44	5.55	6.66	7.77	8.88	11.11
91	3.29	4.39	5.49	6.59	7.69	8.79	10.98
93	3.22	4.30	5.37	6.45	7.52	8.60	10.75
95	3.15	4.21	5.26	6.31	7.36	8.42	10.52
98	3.06	4.08	5.10	6.12	7.14	8.16	10.20
99	3.03	4.04	5.05	6.06	7.07	8.08	10.10
100	3.	4.	5.	6.	7.	8.	10.
101	2.97	3.96	4.95	5.94	6.93	7.92	9.90
102	2.94	3.92	4.90	5.88	6.86	7.84	9.80
103	2.91	3.88	4.85	5.82	6.79	7.76	9.70
104	2.88	3.84	4.80	5.76	6.72	7.69	9.61
105	2.85	3.80	4.76	5.71	6.66	7.61	9.52
110	2.72	3.63	4.54	5.45	6.36	7.27	9.09
113	2.65	3.54	4.42	5.30	6.19	7.07	8.84
115	2.60	3.47	4.35	5.21	6.08	6.95	8.69
120	2.50	3.33	4.16	5.	5.83	6.66	8.33
125	2.40	3.20	4.	4.80	5.60	6.40	8.
130	2.30	3.08	3.84	4.61	5.38	6.15	7.69
135	2.22	2.96	3.70	4.44	5.16	5.92	7.40
140	2.14	2.85	3.57	4.28	5.	5.71	7.14
145	2.06	2.75	3.44	4.13	4.82	5.51	6.89
150	2.	2.66	3.33	4.	4.66	5.33	6.66

Example.—What rate of interest does a stock paying 6% dividends yield if bought at 110?

Look in column headed "Price Paid" for 110, and in parallel line with it, under head of 6%, is 5.45, which is rate yielded.

Savings Bank Compound Interest Table.

Showing the amount of \$1 from 1 year to 15 years, with compound interest added semi-annually, at different rates.

	Seven Per cent.	Six Per cent.	Five Per cent.	Four Per cent.	Three Per cent.
15 Years.	\$2.80	\$2.42	\$2.09	\$1.80	\$1.56
14 "	2.62	2.28	1.99	1.73	1.51
13 "	2.44	2.15	1.90	1.67	1.47
12 "	2.28	2.03	1.80	1.60	1.42
11 "	2.13	1.91	1.72	1.54	1.38
10 "	1.98	1.80	1.63	1.48	1.34
9 1/2 "	1.92	1.75	1.59	1.45	1.32
9 "	1.85	1.70	1.55	1.42	1.30
8 1/2 "	1.79	1.65	1.52	1.39	1.28
8 "	1.73	1.60	1.48	1.37	1.26
7 1/2 "	1.67	1.55	1.44	1.34	1.24
7 "	1.61	1.51	1.41	1.31	1.28
6 1/2 "	1.56	1.46	1.37	1.29	1.21
6 "	1.51	1.42	1.34	1.26	1.19
5 1/2 "	1.45	1.38	1.31	1.24	1.17
5 "	1.41	1.34	1.28	1.21	1.16
4 1/2 "	1.36	1.30	1.24	1.19	1.14
4 "	1.31	1.26	1.21	1.17	1.12
3 1/2 "	1.27	1.22	1.18	1.14	1.10
3 "	1.22	1.19	1.15	1.12	1.09
2 1/2 "	1.18	1.15	1.13	1.10	1.07
2 "	1.14	1.12	1.10	1.08	1.06
1 1/2 "	1.10	1.09	1.07	1.06	1.04
1 "	1.07	1.06	1.05	1.04	1.03
1/2 "	1.03	1.03	1.02	1.02	1.01

Amount of Daily Savings.

The table gives the result of saving daily sums and placing at interest at six per cent.

Cts s'v'd per day.	Dollars in fifty ye's.	Cts. saved per day.	Dollars in fifty ye's.
One	\$950	Sixty	\$57,624
Ten	9,504	Seventy	66,528
Twenty	19,006	Eighty	76,032
Thirty	28,512	Ninety	85,537
Forty	39,015	One dol.	95,041
Fifty	47,520	Five dols.	475,208

Horse Power of an Engine.

This rule will prove correct for all ordinary engines; but there may be a very slight variation in the case of an extra long or extra short stroke.

Rule—Multiply the diameter of the cylinder in inches by itself—in other words, square the diameter in inches, and divide by four.

Lay by something for a rainy day.

Directory of Woman's Exchanges.

The following table is based on the list given in "Directory of Exchanges for Woman's Work, with methods of dealing with them." Written and published by Frank A. Lincoln of Springfield, Mass. Women who wish to buy or sell through the exchange should write for information to the secretaries of the societies with which they wish to deal. Most of the products sold are domestic goods, cooked articles, sewing, fancy work and art work.

- The Woman's Exchange, 121 Main St., Little Rock, Ark.**—Corresponding Secretary, Mrs. Jennie Beauchamp.—Consignments local. Com. 10%.
- The Woman's Industrial Exchange, 125 East 4th St., Los Angeles, Cal.**—Manager, Mrs. M. F. B. Joslyn. Membership is required, fee \$1 yearly. Com. 10%.
- The Woman's Industrial Exchange, 939 Sixth St., San Diego, Cal.**—Secretary, Mrs. G. K. Phillips. Membership is required, fee \$1, yearly. Com. 10%.
- The Woman's Exchange, 116 Sutter St., San Francisco, Cal.**—Corresponding Secretary, Mrs. S. W. Forman. Consignments largely local. Com. 10%.
- The Woman's Industrial Exchange, 729 State St., Santa Barbara, Cal.**—Secretary, Mrs. T. K. Fisher. Consignments local. Membership is required, fee \$1. Com. 10%.
- The Woman's Exchange, 1543, 1545 Stout St., Denver, Col.**—Secretary, Mrs. Sarah L. Tator. Membership is required, fee \$1. Com. 10%.
- The Exchange for Woman's Work, 24 P. O. Arcade, Bridgeport, Ct.**—Corresponding Secretary, Mrs. Lucy B. Foote. Membership is required, fees \$5, \$3, \$2. Com. 10%.
- United Workers and Woman's Exchange, 49 Pearl St., Hartford, Ct.**—Corresponding Secretary, Miss Emily M. Morgan. Membership is required, fee \$1. Com. 10%.
- The Exchange for Woman's Work, 9 Atlantic St., Stamford, Ct.**—Corresponding Secretary, Mrs. C. F. Loshe. Membership is required, fee \$3 per year. Com. 10%.
- The Exchange for Woman's Work, 9 Atlantic St., Stamford, Ct.**—Corresponding Secretary, Mrs. C. F. Loshe. Com. 10%.
- The Woman's Exchange, 149 Bank St., Waterbury, Ct.**—Secretary, Mrs. R. C. Patru. Membership is required, fee \$1. Com. 10%.
- The Woman's Exchange, 609 13th St., N. W., Washington, D. C.**—Manager, Mrs. Rebecca Washington. Consignments local. Membership is required, fee \$1. Com. 10%.
- The Woman's Exchange, 309 McIntosh St., Augusta, Ga.**—Secretary, Miss E. Brown. Consignments chiefly local. Membership is required, fee \$1 yearly. Com. 10%.
- The Exchange for Woman's Work, 209 Wabash Ave., Chicago, Ill.**—Corresponding Secretary, Mrs. Samuel G. Field.

Membership is required, fee \$1. Com. 10%.

- The Woman's Exchange, North Park St., Decatur, Ill.**—Secretary, Miss Lillian B. Irwin. Consignments local. Com. 10%.
- The Woman's Exchange, 317 West State St., Jacksonville, Ill.**—Secretary, Miss Eugenie Fitzsimmons. Com. 10%.
- The Woman's Exchange, 227 South Fifth St., Springfield, Ill.**—Secretary, Miss Alice Corneau. Consignments local. Membership is required, fee \$1. Com. 10%.
- The Woman's Industrial Exchange, Corner Sixth St. and Kansas Ave., Atchinson, Kans.**—Secretary, Mrs. E. C. Wynn. Consignments local. Membership is required, fee \$1. Com. 15%.
- The Ladies' Exchange, 119 West Sixth Ave., Topeka, Kan.**—Secretary, S. M. Crow. Membership is required, fee \$1. Com. 15%.
- The Woman's Exchange, 243 North Main St., Wichita, Kan.**—Manager, Mrs. Z. E. Ireland. Consignments local. Com. 10 or 15%.
- The Woman's Exchange, 42 North Upper St., Lexington, Ky.**—Secretary, Mrs. John Allen. Membership is required, no fee. Com. 10%.
- The Woman's Exchange, 545 Fourth Ave., Louisville, Ky.**—Secretary, Mrs. Charles F. Smith. Membership is required, fee \$5. Com. 10%.
- The Christian Woman's Exchange, So. and Camp Sts., New Orleans, La.**—Corresponding Secretary, Mrs. D. A. Given. Com. 10%.
- The Woman's Industrial Exchange, 331 No. Charles St., Baltimore, Md.**—Corresponding Secretary, Mrs. P. H. Hiss. Com. 10%.
- The Woman's Exchange, Amherst, Mass.**—Manager, Mrs. L. A. Atwood. Com. 10%.
- The Woman's Educational and Industrial Union, 98 Boylston St., Boston, Mass.**—Corresponding Secretary, Miss Louise C. Young. Com. 10% until \$500 is sold, all above that 15%.
- Depository of the Union for Good Works, 6 Purchase St., New Bedford, Mass.**—Secretary, Miss A. S. Tobey. Com. 10%.
- The Exchange for Woman's work, 3 Main St., Northampton, Mass.**—Secretary, Miss M. D. Hodges. Consignments largely local. Com. 10%.
- The Woman's Employment Society, 5 Forest Ave., Worcester, Mass.**—Pres., Mrs. Theodore Brown. Com. 10%.
- The Exchange for Woman's Work, 12 Grand River Ave., Detroit, Mich.**—Corresponding Secretary, Mrs. W. FitzHugh Edwards. Membership is required, fee \$1. Com., under \$500, 10%; over \$500, 15%.
- The Woman's Work Exchange, 323 Superior St., Duluth, Minn.**—Secretary, Mrs. O. H. Simonds. Com. 10%.
- The Woman's Work Exchange, Endicott Arcade, Saint Paul, Minn.**—Secretary, Mrs. Kenneth Clark. Membership is re-

Tell not all you know, all you owe, all you have, nor all you can.

Directory of Woman's Exchanges.—Continued.

- quired, fee \$1 per year, or quarter rates. Com. 10%.
- The Woman's Exchange, 513 Frances street, St. Joseph, Mo.—Corresponding Secretary, Mrs. C. W. A. Cartledge. Com. 10%.
- The Woman's Exchange, 617 Locust street, St. Louis, Mo.—Corresponding Secretary, Mrs. H. D. King. Com. 10%.
- The Woman's Exchange, 87 Broad street, Elizabeth, N. J.—Secretary, Mrs. C. Symmes Kiggins. Membership is required, fee \$2. Com. 10%.
- The Woman's Work Exchange, Palasade Ave., Englewood, N. J.—Secretary, Mrs. William E. Tillinghast. Membership is required, fee \$5. Com. 10%.
- The Woman's Work and Art Exchange, South street, Morristown, N. J.—Secretary, Mrs. Edwin Ross. Membership is required, fee \$5. Com. 10%.
- The Exchange for Woman's Work, 541 Broad street, Newark, N. J.—Corresponding Secretary, Miss E. A. Hubbell. Com. 10%.
- The Woman's Depository and Exchange, Neilson street, foot of Church, New Brunswick, N. J.—Secretary, Miss C. Woodbridge. Com. 6%.
- The Woman's Exchange, 61 Park Ave., Plainfield, N. J.—Manager, Miss Clara S. Whitfield. Membership is required, fee \$2. Com. 10%.
- The Woman's Exchange, 46 North Pearl street, Albany, N. Y.—Secretary, Mrs. D. K. Bartlett. Membership is required, fee \$2. Com. 10%.
- The Woman's Work Exchange and Decorative Art Society, 122 Atlantic Ave., Brooklyn, N. Y.—Secretary, Mrs. J. S. Frothingham. Com. 15%.
- The Woman's Exchange, 42 White Bldg., 298 Main street, Buffalo, N. Y.—Manager, Grace C. Sheldon. Com. 10%.
- The Woman's Exchange, 66 Fourth Ave., Mount Vernon, N. Y.—Manager, Mrs. Mary Jennings. Membership is required. Com. 10%.
- The Exchange for Woman's Work, 329 Fifth Ave., New York, N. Y.—President, Mrs. William G. Choate. Com. 10%.
- The Harlem Exchange for Woman's Work, 40 West 125th St., New York.—Secretary, Mrs. Joseph Keane. Com. 10%.
- The Madison Avenue Depository and Exchange for Woman's Work, 628 Madison Ave., corner of 59th street, New York, N. Y.—Secretary, Mrs. H. T. Hanks. Membership is required, fee \$3 per annum. Com. 10%.
- The Rochester Art Exchange, 510, 512, 514 Powers Bldg., Rochester, N. Y.—Secretary, Mrs. Charles Ford. Membership is required, fee, six months \$1; one year, \$1.50. Com. 10%.
- The Woman's Exchange, 43 Fourth street, Troy, N. Y.—Secretary, Miss Helen Ford. Consignments local. Com. 10%.
- The Woman's Exchange, 240 Genesee street, Utica, N. Y.—Secretary, Mrs. George W. Best. Membership is required, fee \$1 six months, \$2 one year. Com. 10%.
- The Woman's Exchange, corner of Race and Longworth streets, Cincinnati, O.—Corresponding Secretary, Miss Jennie Hubbs. Membership is required, fee \$2.50. Com. 10%.
- The Woman's Exchange, 61 Kendal Bldg., 106 Euclid Ave., Cleveland, O.—Manager, Mrs. Charles Sibley. Com. 10%.
- The Woman's Exchange, 17 High street, Columbus, O.—Corresponding Secretary, Mrs. J. A. Steinbarger. Com., edibles, 10%; fancy goods, 12%.
- The Art Exchange, 10 N. Market Sq., Harrisburg, Pa.—Manager, Miss Agnes E. Felix. Com. 10%.
- The Woman's Exchange, 118½ East King street, Lancaster, Pa.—Secretary, Miss Anna Key Messersmith. Consignments local. Membership is required, fee 50c. Com. 10%.
- The Ladies' Depository Association, 1108 Walnut street, Philadelphia, Pa.—Secretary, Mrs. Cornelia Stevenson. Com. 4%.
- The Exchange for Woman's Work, 1822 Chestnut street, Philadelphia, Pa.—Corresponding Secretary, Mrs. Silas V. Pettit. Membership is required, fee \$2. Com. 10%.
- The Woman's Industrial Exchange, 621 Penn Ave., Pittsburg, Pa.—Corresponding Secretary, Mrs. J. O. Horne. Com. 10%.
- The Exchange for Woman's Work, Hope street, Bristol, R. I.—Secretary, Mrs. O. L. Bosworth. Consignments chiefly local. Com. 10%.
- The Woman's Exchange, 24 Washington Sq., Newport, R. I.—Secretary, Mrs. F. S. Waite. Membership is required, fee \$2. Com. 10%.
- The Rhode Island Exchange for Woman's Work, 29 to 33 Market Sq., Providence, R. I.—Secretary, Mrs. William Ames. Membership is required, fee \$3. Com. 10%.
- The Exchange for Woman's Work, 217 King street, Charleston, S. C.—Secretary, Mrs. J. L. Weber. Membership is required, fee \$1 per annum. Com. 10%.
- The Exchange for Woman's Work, 32 North Court street, Memphis, Tenn.—Corresponding Secretary, Mrs. Clifford Bruce. Membership is required, fee \$3. Com. 10%.
- The Woman's Exchange, 120 Main street, Houston, Texas.—Secretary, Mrs. Umilt. Membership is required, fee \$3 annually. Com. 10%.
- The Woman's Work Exchange, 7 Ave. B, San Antonio, Texas.—Manager, Mrs. E. S. Cooley. Com. 10%.
- The Exchange for Woman's Work, 151 Main street, Charlottesville, Va.—Corresponding Secretary, Miss Clara Davis. Membership is required, fee \$2. Com. 10%.
- The Woman's Exchange, 811 Main street,

Sin is not hurtful because forbidden, but forbidden because hurtful.

Directory of Woman's Exchanges.—Continued.

Lynchburg, Va.—Secretary, Mrs Edward A. Craighill. Membership is required, fee \$2. Com. 10%.

The Woman's Work Exchange, 43 Granby street, Norfolk, Va.—Secretary, Mrs. Ella Goodrich. Com. 10%.

The Exchange for Woman's Work, 327 E. Franklin street, Richmond, Va.—Corresponding Secretary, Mrs. G. N. Woodbridge. Membership is required, fee \$2. Com. 10%.

The Exchange for Woman's Work, Main street, Staunton, Va.—Corresponding Secretary, Miss Eva Thompson. Membership is required, fee \$1. Com. 10%.

The Tacoma Exchange, 109 S. Tenth street, Tacoma, Washington.—Com. 10%.

The Woman's Exchange, 12 Carol street, Madison, Wis.—Secretary, Miss Florence T. Delaphine. Com. 10%.

The Woman's Industrial Exchange, 413 Milwaukee street, Milwaukee, Wis.—Secretary, Mrs. A. W. Bartlett.

The Woman's Exchange, 22 Washington street, Oshkosh, Wis.—Secretary, Miss Jennie Marvin. Com. 10%.

Woman's Industrial Exchange, 2260 St. Catherine street, Montreal, Dominion of Canada.—Secretary, Mrs. E. Frost. Membership is required, fee \$1 per year. Com. 10%.

How to Get a Patent.

Apply to the commissioner of patents at Washington, D. C. The applicant must also file in the patent office a written description of the device, and of the manner and process of making, constructing, compounding and using it, in such full, clear, concise and exact terms as to enable any person skilled in the art or science to which it appertains, or with which it is most nearly connected, to make, construct, compound and use the same; and in case of a machine, he must explain the principle thereof, and the best mode in which he has contemplated applying that principle, so as to distinguish it from other inventions, and particularly point out and distinctly claim the part, improvement or combination which he claims as his invention or discovery. The specification and claim must be signed by the inventor and attested by two witnesses.

When the nature of the case admits of drawings, the applicant must furnish a drawing of the required size, signed by the inventor or his attorney in fact, and attested by two witnesses, to be filed in the patent office. In all cases which admit of representation by model, the applicant, if required by the commissioner, shall furnish a model of convenient size to exhibit advantageously the several parts of his invention or discovery.

The applicant must make oath that he verily believes himself to be the original and first inventor or discoverer of the art, machine, manufacture, composition or improvement for which he solicits a patent; that he does not know and does not believe that the same was ever before known or used, and shall state of what country he is a citizen. Such oath may be made before any person within the United States authorized by law to administer oaths, or, when the applicant resides in a foreign country, before any minister, charge d'affaires, consul or commercial agent holding commission under the government of the United States.

After the application has been properly filed, and the necessary fees paid, the commissioner of patents will grant the patent, provided he finds the claim just and the article of sufficient importance.

The Nicaragua canal was projected to connect the Atlantic and Pacific oceans, using the waters of Lake Nicaragua. Total distance from ocean to ocean, about 170 miles. In the report submitted by the Nicaragua canal commission to President Cleveland, the estimated cost of construction is \$133,472,893.

Hard work pays debts, despair increases them.

General Weights, Measures and Estimates.

Domestic Weights and Measures.

Apothecaries' Weight: 20 grains=1 scruple; 3 scruples=1 dram; 8 drams=1 ounce; 12 ounces=1 pound.

Avoirdupois Weight (short ton): 2711-32 grains=1 dram; 16 drams=1 ounce; 16 ounces=1 pound; 25 pounds=1 quarter; 4 quarters=1 cwt.; 20 cwt.=1 ton.

Avoirdupois Weight (long ton): 2711-32 grains=1 dram; 16 drams=1 ounce; 16 ounces=1 pound; 112 pounds=1 cwt., 20 cwt.=1 ton.

Troy Weight: 24 grains=1 pennyweight; 20 pennyweights=1 ounce; 12 ounces=1 pound.

Circular Measure: 60 seconds=1 minute; 60 minutes=1 degree; 30 degrees=1 sign; 12 signs=1 circle.

Cubic Measure: 1,728 cubic inches=1 cubic foot; 27 cubic feet=1 cubic yard.

Dry Measure: 2 pints=1 quart; 8 quarts=1 peck; 4 pecks=1 bushel.

Liquid Measure: 4 gills=1 pint; 2 pints=1 quart; 4 quarts=1 gallon; $31\frac{1}{2}$ gallons=1 barrel; 2 barrels=1 hogshead.

Fluid Measure: The minim=0.95 grains; 60 minims=1 fluid drachm; 8 fluid drachms=1 fluid ounce (455.69 grains) or 460 minims.

Long Measure: 12 inches=1 foot; 3 feet=1 yard; $5\frac{1}{2}$ yards=1 rod or pole; 40 rods=1 furlong; 8 furlongs=1 statute mile; 3 miles=1 league.

Mariner's Measure: 6 feet=1 fathom; 120 fathoms=1 cable length; $7\frac{1}{2}$ cable lengths=1 mile; 5,280 feet=1 statute mile; 6,085 feet=1 nautical mile.

Square Measure: 144 square inches=1 square foot; 9 square feet=1 square yard; $30\frac{1}{4}$ square yards=1 square rod or perch; 40 square rods=1 rood; 4 roods=1 acre; 640 acres=1 square mile; 36 square miles (6 miles square)=1 township.

Time Measure: 60 seconds=1 minute; 60 minutes=1 hour; 24 hours=1 day; 7 days=1 week; 365 days=1 year; 366 days, 1 leap year.

Diamond Weight: 4 grains=1 carat; 16 parts=1 grain=0.8 Troy grains; carat=3.2 Troy grains.

Measure of Number: 12 Units=1 dozen; 12 dozen=1 gross; 20 units=one score.

Mariner's Measure: 6 feet=one fathom; 120 fathoms=one cable. A nautical mile or knot, 6,086.7 feet, while a common mile is 5,280 feet.

Chain Measure: 7.92 inches=1 link; 100 links=1 chain; 80 chains=1 mile; 10 square chains=1 acre.

Paper Measure. 24 sheets=1 quire; 20 quires=1 ream; 2 reams=1 bundle; 5 bundles=1 bale.

Various Units.—A cubit is 4 hands and a half, or 1 foot and a half. A yard is 36 inches or 2 cubits. A square yard is 9 square feet. A cubical yard is 27 cubical feet. An ell is 1 yard and a quarter, or 45 inches. A geometrical space is 5 feet. A fathom is 6 feet, or two yards. A square is 100 square feet. A pace is 3 feet. A palm is 3 in. A hand is 4 in. A span is 6 in. A Bible cubit is 21.8 in.

Cloth Measure: $2\frac{1}{4}$ inches=1 nail; 4 nails=1 quarter; 4 quarters=1 yard.

Liquids.—One gallon oil weighs 9.32 lbs. avoird. One gallon distilled water 10 lbs. One gallon sea water 10.32 lbs. One gallon proof spirits 9.08 lbs.

Iron, Lead, etc.—14 lbs.=1 stone; $21\frac{1}{2}$ stone=1 pig; 8 pigs=1 fother.

Beef, Pork, etc.: 200 lbs.=1 barrel; 196 lbs. (flour)=1 barrel; 100 lbs. (fish)=1 quintal.

The commercial weights and measures of the United States are the avoirdupois pound (7,000 grains)=16 ounces of 437.5 grains each. The wine gallon (231 cubic inches)=4 quarts or 8 pints of 16 fluid ounces to each pint.

Various Miles.—The distance called a mile varies greatly in different countries. Its length in yards is as follows: Norway, 12,182; Sweden, 11,660; Hungary, 9,139; Switzerland, 8,548; Austria, 8,297; Prussia, 8,238; Poland, 8,100; Italy, 2,025; England and the United States, 1,760; Spain, 1,522; Netherlands, 1,094. The nautical mile is one-sixtieth the length of a degree at the equator, or 2,025 yards.

Roman and Arabic Numerals.

I.....	1	XI.....	11	XXX.....	30	CCCC.....	400
II.....	2	XII.....	12	XL.....	40	D.....	500
III.....	3	XIII.....	13	L.....	50	DC.....	600
IV.....	4	XIV.....	14	LX.....	60	DCC.....	700
V.....	5	XV.....	15	LXX.....	70	DCCC.....	800
VI.....	6	XVI.....	16	LXXX or XXC.....	80	CM.....	900
VII.....	7	XVII.....	17	XC.....	90	M.....	1000
VIII.....	8	XVIII.....	18	C.....	100	MM.....	2000
IX.....	9	XIX.....	19	CC.....	200	MDCCCXCVII.,.,	1897
X.....	10	XX.....	20	CCC.....	300		

He that is secure is not safe.

Weights and Measures for Cooking.

One teaspoonful equals 1 dram. One dessert spoonful equals 2 teaspoonfuls, or 2 drams. One tablespoonful equals 2 dessert spoonfuls, or 4 teaspoonfuls. Two tablespoonfuls equal 8 dessert spoonfuls, or 1 ounce. One common size wineglass equals 2 ounces, or $\frac{1}{2}$ gill. A teacup is estimated to hold 4 fluid ounces, or 1 gill. One pound of sugar is equal to about 1 pint. Ten medium sized eggs weigh one pound. A tablespoonful of salt is an ounce. Sixty drops are one teaspoonful. One pound of wheat

flour is equal to 1 quart. One pound and 2 ounces of Indian meal make 1 quart. Two pounds of soft butter is equal to 1 quart. One pound and 14 ounces of best brown sugar make 1 quart. One pound and 14 ounces of powdered white sugar make 1 quart. Four large tablespoonfuls make $\frac{1}{2}$ gill. One common sized tumbler holds $\frac{1}{2}$ pint. One common sized wine glass is equal to $\frac{1}{2}$ gill. One teacup holds $\frac{1}{2}$ gill. One tablespoonful is equal to $\frac{1}{2}$ ounce.

Table of Box Measure.

A box 24 inches by 16 inches square, and 2 inches deep, will contain a barrel, or 19,752 cubic inches.

A box 24 inches by 16 inches square, and 4 inches deep, will contain a half-barrel, or 5,376 cubic inches.

A box 16 inches by 16 8-10 inches square, and 8 inches deep, will contain a bushel, or 2,150 4-10 cubic inches.

A box 12 inches by 11 2-10 inches square, and 8 inches deep, will contain a half-bushel, or 1,075 2-10 cubic inches.

A box 8 inches by 8 4-10 inches square, and 8 inches deep, will contain one peck or 537 6-10 cubic inches.

A box 8 inches by 8 inches square, and

4 2-10 inches deep, will contain one-half peck, or 268 8-10 cubic inches.

A box 7 inches by 4 inches square, and 4 8-10 inches deep, will contain a half-gallon, or 134 4-10 cubic inches.

A box 4 inches by 4 inches square, and 4 2-10 inches deep, will contain one quart, or 67 2-10 cubic inches.

The measures all come within a small fraction of a cubic inch of being perfectly accurate; as near, indeed, as any measures of capacity have ever yet been made for common use. The difficulty of making them with absolute exactness has never yet been overcome.

Metric Weights and Measures.

METRIC WEIGHTS.

Milligram (1-1000 gram) equals 0.0154 grain.
Centigram (1-100 gram) equals 0.1543 grain.
Decigram (1-10 gram) equals 1.5432 grains.
Gram equals 15.432 grains.
Decagram (10 grams) equals 0.3527 ounce.
Hectogram (100 grams) equals 3.5274 ounces.
Kilogram (1,000 grams) equals 2.2046 pounds.
Myriagram (10,000 grams) equals 22.046 pounds.
Quintal (100,000 grams) equals 220.46 pounds.
Millier or tonneau—ton (1,000,000 grams) equals 2,204.6 pounds.

METRIC DRY MEASURES.

Milliliter (1-1000 liter) equals 0.061 cubic inch.
Centiliter (1-100 liter) equals 0.6102 cubic inch.
Deciliter (1-10 liter) equals 6.1022 cubic inches.
Liter equals 0.908 quart.
Decaliter (10 liters) equals 9.08 quarts.
Hectoliter (100 liters) equals 2.838 bushels.
Kiloliter (1,000 liters) equals 1.308 cubic yards.

METRIC LIQUID MEASURES.

Milliliter (1-1000 liter) equals 0.0388 fluid oz.
Centiliter (1-100 liter) equals 0.338 fluid oz.
Deciliter (1-10 liter) equals 0.845 gill.
Liter equals 1.0567 quarts.
Decaliter (10 liters) equals 2.6418 gallons.
Hectoliter (100 liters) equals 26.418 gallons.
Kiloliter (1,000 liters) equals 264.18 gallons.

METRIC MEASURES OF LENGTH.

Millimeter (1-1000 meter) equals 0.0394 inch.
Centimeter (1-100 meter) equals 0.3937 inch.
Decimeter (1-10 meter) equals 3.937 inches.
Meter equals 39.37 inches.
Decameter (10 meters) equals 393.7 inches.
Hectometer (100 meters) equals 328 feet 1 in.
Kilometer (1,000 meters) equals 0.62137 mile.
Myriameter (10,000 meters) equals 6.2137 miles.

METRIC SURFACE MEASURES.

Centare (1 square meter) equals 1,550 square inches.
Are (100 square meters) equals 119.6 square yards.
Hectare (10,000 square meters) equals 2,471 acres.

Equivalents.

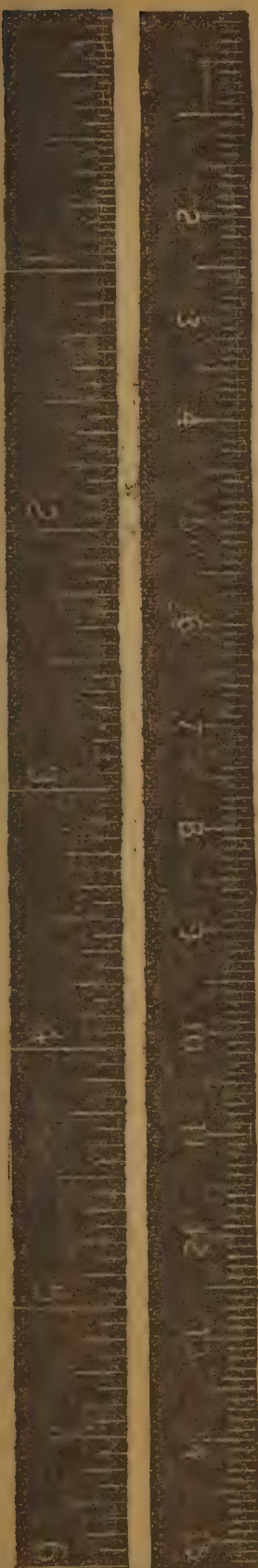
1 acre equals .4047 hectare.
1 bushel equals 35.24 liters.
1 centimeter equals .3937 inch.
1 cubic centimeter equals .0610 cubic inch.
1 cubic foot equals .0283 cubic meter.
1 cubic inch equals 16.39 cubic cent.
1 cubic meter equals 35.31 cubic feet.
1 cubic yard equals .7645 cubic meter.
1 foot equals 30.48 centimeters.
1 gallon equals 3.785 liters.

1 grain equals .0648 gram.
1 gram equals 15.43 grains.
1 hectare equals 2.471 acres.
1 inch equals 25.40 millimeters.
1 kilogram equals 2.205 pounds.
1 kilometer equals .6214 mile.
1 liter equals .9081 quart (dry).
1 liter equals 1.057 quart (liquid).
1 ton (metric) equals 1.102 tons (2,000 lbs).
1 yard equals .9144 meter.

Foreign Weights and Measures.

Country where used.	Weight.	Dry Measure.	Liquid Measure.	Length Measure.	Surface Measure.
Argentina,	Arroba	Frasco,	Baril	Pic,	Quadra,
Austria,	Centner,	Matze,	Mind,	Elle,	Joch,
Belgium,	Livre,	Last,	Cantaro,	Toise,	Sepent.
Bolivia,	Marc,	Fanega,		Vare,	Fanegada,
Brazil,	Arroba,				
Cent. America,					
Chile,	Libra,	Fanega,	Cantaro,	Vara,	38.87 in.
China,	Catty,	Fanega,		Vara,	33.37 in.
Denmark,	Centner,	Tonde,	Kande,	Chih,	14 in.
Germany,	Last,	Meize,	Ossel,	Mil,	4.68 m.
Great Britain,	Cwt.,	Quarter,		Mile,	4.68 m.
Greece,	Livre,				
India,	Bongkal,	Geez,	Seer,	Jojun,	8000 yds.
Japan,	Catty,	Koku,	Shoo,	Se,	3.6 ft.
Mexico,	Carga,		Baril,	Vara,	33 in.
Netherlands,		Last,			
Norway,	Centner,				
Peru,	Libra,	Fanega,		Vara,	33.36 in.
Portugal,	Libra,	Korree,	Almude,		28 in.
Russia,	Pood,	Fanega,	Vedro,	Arshine,	5.56 ft.
Spain,	Erail,		Fanega,	Ertado,	6.64 in.
Sweden,	Centner,			Mil,	27.90 in.
Turkey,	Oke,	Jubleh,	Rottol,	Pike,	33.38 in.
Venezuela,	Arroba,	Fanega,	Arroba, 1q.	Vara,	

CENTIMETERS.



INCHES.

The metric and English systems of length measure are compared in the illustration. The upper rule shows centimeters, and tenths (millimeters). The lower rule shows inches and sub-divisions.

THE AGRICULTURIST'S GUIDE.

Institutes and Experiment Stations.

Farmers' Institutes in the United States and Canada.

Meetings of farmers, for giving and obtaining information about agriculture, were held at an early day, but it is within the twenty years just passed that organized institute work has been done and the modern systems developed. Almost every state now boasts of from five to 300 farmers' gatherings annually, each consisting of one to three sessions daily for one to three days, and more than 1,000,000 people are reached. A great many different systems are now in use, no two states using exactly the same plan. There are, however, several typical ones. First, where institute work is in charge of the state board of agriculture. Second, where institutes are controlled by the agricultural college. Third, where the meetings in any locality are held independent of any central organization, and fourth, where a central authority works in connection with local associations.

DIFFERENT METHODS are adapted to various conditions. In new and thinly settled regions, where the people are unfamiliar with institute work, a centralized system gives good results. In older states, established local associations do not require much assistance, and more responsibility can be thrown upon them. On the whole, it seems that the moderately centralized system is the best for all localities, although it may not be as necessary in some as in others. Where the separate counties conduct their own institutes, the work is not uniformly satisfactory.

The agricultural colleges have always been pioneers in this work, beginning and fostering it until its utility is demonstrated, after which, state aid is usually secured. Where the institute work is systematized, it is the common plan to select a superintendent of institutes, who locates the meetings and fixes the dates, consulting with the home managers, every endeavor being made to serve the best interests of the farmers of the different communities. He then assigns outside speakers, directs the work of the institute corps and attends as many meetings as possible. At the end of the institute season, he collects the best papers and from them selects the material for the annual bulletin, which he edits and publishes.

At each institute, an endeavor is made to cover every branch of agriculture, not excepting the care and making of the home, and instruction in preparing foods. Many of the institutes have regular cooking schools, conducted by experts, and special woman's sessions are held for the consideration of topics relating directly to the sphere of the home-maker. Where any special branch of farming predominates, more time is given to it. In dairy sections, dairy addresses are in the majority, and a corresponding arrangement is made in potato sections, sheep and cattle raising communities, general farming districts, etc., etc.

THE MIDDLE STATES and those of the central west lead in institute work. New York appropriates \$15,000 annually and meetings are located upon applications from granges, farmers' clubs, etc. The speakers furnished by the director are principally practical farmers who have been especially suc-

Make the farm not larger, but deeper.

cessful in some line. Valuable aid is obtained from Cornell University and the experiment station at Geneva. From 180 to 200 meetings are held annually. In Ohio, institutes are under the direction of the state board of agriculture, and its secretary is the superintendent of institutes. About \$5,000 is available for the use of the board, and a like amount is raised by local societies to defray the expenses of the meetings, many of which are held independent of the state board. About 200 institutes a year is the usual number. On the regular speaker list are 35 men; five from the state university, five from the experiment station, and the remainder intelligent farmers well equipped for the work. Pennsylvania institutes are also managed by the board of agriculture, with \$7500 annually available for the work. About 175 institutes a year is the average.

In Michigan, \$5000 is appropriated annually to the agricultural board, which works in connection with the existing local farmers' clubs and other agricultural organizations. A well conducted woman's section is a feature of many Michigan institutes. Wisconsin has made the institute bureau a part of the agricultural college and provides an annual appropriation of \$12,000. Over 150 meetings are held each year. Ten or a dozen summer institutes in June, with 15 to 20 cooking schools during the winter, are the special features of value. Over 50,000 copies of the annual bulletin are issued and distributed. In Minnesota the system is unique in that the institute takes the form of a traveling school. The superintendent goes from place to place with a corps of trained workers, specialists on the different lines, and presents a program, local talent not being called upon. The work is under the auspices of the agricultural college and the state annually appropriates \$13,500 for its support. In Illinois the institutes have just been placed under the direction of a board consisting of one member from each congressional district and one ex-officio member from the agricultural college and each of the state agricultural societies. This board elects a superintendent who has direct charge of institutes; \$12,500 is now annually available. In Iowa, independent county organizations hold meetings and are entitled to \$50 from the state. Indiana institutes are managed by the agricultural college, which gets \$5000 each year from the state for the purpose.

In Kansas, Nebraska, and in fact the greater number of western and Pacific coast states, institutes are carried on by the agricultural college without state aid. Although badly handicapped from lack of funds, a large amount of good work has been done, greatly to the credit of those having it in charge.

In New England, most of the states make an appropriation to the board of agriculture, which apportions it to the different counties or county agricultural societies. The work is not so well organized as at the west and suffers in consequence.

At the south, not many institutes are held, but there seems to be an awakening to the necessity of this kind of education and an increased number of meetings are being conducted. The agricultural college or state board of agriculture usually assists in holding the institutes.

Canada holds a large number of institutes, particularly in Ontario and Manitoba. The expenses are defrayed partially by legislative appropriations and partly by the local societies, which charge a small membership fee to render the home part of the institute self-supporting.

Up to 1896 workers in the different states had developed their individual ideas without conference with outsiders, but March 13 of that year, representatives from six states met at Watertown, Wis., and formed an international association of institute workers with a view of improving the work all along

The farm is the owner's looking glass.

the line by a comparison of methods and a discussion of systems. At the second meeting in Chicago, Oct. 14-15, 1896, a permanent society was formed, to be known as the American association of farmers' institute managers, the active membership being limited to one representative from each state or province of the United States or Canada, who shall be in charge of the institute work as superintendent, director, or manager. Supt. Geo. McKerrow of Wis. was elected president, and Supt. F. W. Taylor of Lincoln, Neb., secretary and treasurer. The third meeting of the association was held at Columbus, Ohio, Oct. 27-28, 1897, at which the following officers were elected for 1898: Pres., John Hamilton of Pa.; vice pres., W. C. Latta of Ind.; secretary and treasurer, F. W. Taylor of Lincoln, Nebraska.

National Aid to Agricultural Education and Experimentation.

The so-called Morrill act of July 2, 1862, made grants of land to the respective states for the establishment of colleges to give instruction in agriculture and the mechanic arts. Most of the states sold their land grant scrip at low prices years ago and obtained a comparatively small return therefrom. New York was a conspicuous exception. Cornell university was a land grant college and did not dispose of its lands until their value had so advanced as to yield a great sum of money.

The so-called Hatch act of congress, March 2, 1887, appropriates \$15,000 annually to each state for an agricultural experiment station. The amended Morrill act of August, 1890, provided for an additional appropriation to each state for its agricultural and mechanical college amounting to \$15,000 that year, increasing \$1,000 annually until the amount should be \$25,000 a year. The amount due and already paid to the 48 colleges for the fiscal year ended June 30, 1898, is \$23,000 each, a total of \$1,104,000.

Water Power of a Stream.

To estimate water power, take the discharge of the stream in cubic feet per minute, multiply it by the fall in feet obtainable at the site of the proposed water wheel, and divide the product by 530. This will give the theoretical horse power. The actual horse power obtained will be, in the case of an overshot wheel properly placed, about sixty-eight per cent of the theoretical horse power.

To Estimate Paint.

The following will give reasonably near the amount required for two coats of average thickness applied under average conditions. Find the surface area of space to be covered by multiplying together the height and width. Divide the result expressed in square feet by 200. The result will give the number of gallons of paint required:

Black ink for zinc labels.—Verdigris, 1 ounce; sal ammoniac, 1 ounce; lampblack, 1-2 ounce; rain water, 1-2 pint. Mix in an earthenware mortar or jar and put up in small bottles. To be shaken before use and used with a clean quill pen on bright zinc.

To preserve wooden labels.—Thoroughly soak the pieces of wood in a strong solution of copperas (sulphate of iron); then lay them, after they are dry, in lime water. This causes the formation of sulphate of lime, a very insoluble salt, in the wood.

Be easy with the young colt and the growing boy.

Agricultural Experiment Stations in the United States and Canada,

Their Location, Directors, and Principal Lines of Work.

STATION.	DIRECTOR.	Lines of Work in Addition to Chemistry, Horticulture, and Field Experiments.
Alabama (College), Auburn...	W. L. Broun.....	Meteorology; botany; diseases of plants.
Alabama (Canebrake), Union-town.....	H. Benton.....	Diseases of animals.
Arizona, Tucson.....	W. S. Devol.....	Entomology; forestry; irrigation.
Arkansas, Fayetteville.....	R. L. Bennett....	Analysis of fertilizers and feeding stuffs; entomology; diseases of plants; diseases of animals.
California, Berkeley.....	E. W. Hilgard....	Meteorology; physics and chemistry of soils; composition and cultivation of grapes and orchard fruits (especially olives); composition of feeding stuffs; entomology; technology; drainage and irrigation; reclamation of alkali lands.
Colorado, Fort Collins.....	Alston Ellis.....	Meteorology; botany; entomology; irrigation.
Connecticut (State) New Haven.....	S. W. Johnson...	Analysis and inspection of fertilizers; chemistry of feeding stuffs; chemistry of milk and its products; diseases of plants; pot experiments with organic nitrogen.
Connecticut (Storrs), Storrs...	W. O. Atwater...	Chemistry of feeding stuffs and food of man; digestion experiments; dietary studies; bacteriology of milk and its products; dairying.
Delaware, Newark.....	A. T. Neale	Diseases of plants; entomology; feeding experiments; dairying; diseases of animals.
Florida, Lake City.....	O. Clute.....	Dairying.
Georgia, Experiment.....	R. J. Redding....	Botany; soils and water; feeding experiments (pigs); drainage and irrigation.
Idaho, Moscow.....	F. B. Gault.....	Bacteriology; forestry; diseases of plants; entomology; feeding experiments; dairying.
Illinois, Urbana.....	E. Davenport....	Pot and field experiments; feeding experiments (cows and sheep); diseases of animals.
Indiana, LaFayette.....	C. S. Plumb.....	Diseases of plants; entomology; feeding experiments; dairying.
Iowa, Ames.....	C. F. Curtiss....	Diseases of plants; entomology; feeding experiments; diseases of animals; irrigation.
Kansas, Manhattan.....	G. T. Fairchild..	Soils; fertilizer analysis; diseases of plants; entomology; dairying.
Kentucky, Lexington.....	M. A. Scovell....	Soils; sugar making; drainage and irrigation.
Louisiana (Sugar) New Orleans	W. C. Stubbs....	Geology; soils; diseases of plants; entomology; diseases of animals.
Louisiana (State) Baton Rouge	W. C. Stubbs....	Feeding experiments.
Louisiana (North), Calhoun...	W. C. Stubbs....	Diseases of plants; digestion and feeding experiments; diseases of animals; dairying.
Maine, Orono.....	C. D. Woods.....	Soils; entomology; feeding experiments; drainage.
Maryland, College Park.....	R. H. Miller.....	Analysis and control of fertilizers; digestion and feeding experiments; meteorology; diseases of plants; entomology; diseases of animals.
Massachusetts (Hatch), Amherst.....	H. H. Goodell....	

Plow, cultivate and weed your brains for a crop of ideas.

Agricultural Experiment Stations.—*Continued.*

STATION.	DIRECTOR.	Lines of Work in Addition to Chemistry, Horticulture, and Field Experiments.
Michigan, Agr'tural College..	C. D. Smith.....	Botany; soils; diseases of plants; entomology; feeding experiments; diseases of animals; dairying; irrigation.
Minnesota, St. Anthony Park	W. M. Liggett....	Chemistry of foods; soils; weeds; entomology; feeding and breeding experiments; diseases of animals; dairying.
Mississippi Agr'tural College	W. L. Hutchinson	Botany; soils; entomology; digestion and feeding experiments; diseases of animals; drainage and irrigation.
Missouri, Columbia.....	H. J. Waters.....	Diseases of plants; entomology; feeding experiments; drainage.
Montana, Bozeman.....	S. M. Emery.....	Diseases of plants; feeding experiments; diseases of animals; irrigation.
Nebraska, Lincoln.....	G. E. MacLean..	Botany; meteorology; forestry; feeding and breeding experiments; diseases of animals.
Nevada, Reno.....	J. E. Stubbs.....	Botany; soils; entomology; irrigation.
New Hampshire, Durham....	C. S. Murkland..	Feeding experiments; diseases of animals; dairying.
New Jersey (State) New Brunswick.....	E. B. Voorhees..	Analysis and control of fertilizers; horticulture.
New Jersey (College), New Brunswick.....	E. B. Voorhees..	Botany; diseases of plants; entomology; diseases of animals.
New Mexico, Mesilla Park....	C. T. Jordan.....	Botany; diseases of plants; entomology; feeding experiments.
New York (State), Geneva.....	W. H. Jordan....	Meteorology; analysis and control of fertilizers; diseases of plants; feeding experiments; poultry experiments; dairying.
New York (Cornell), Ithaca...	I. P. Roberts	Fertilizer investigations; diseases of plants; entomology; feeding experiments; poultry experiments; dairying.
North Carolina, Raleigh.....	W. A. Withers...	Meteorology; analysis and control of fertilizers; seed testing; composition of feeding stuffs.
North Dakota, Fargo.....	J. H. Worst.....	Diseases of plants; feeding experiments
Ohio, Wooster.....	C. E. Thorne.....	Soils; diseases of plants; entomology; breeding and feeding experiments.
Oklahoma, Stillwater.....	G. E. Morrow....	Soils and waters; feeding experiments; entomology.
Oregon, Corvallis.....	T. S. Gatch.....	Soils; diseases of plants; entomology; feeding experiments.
Pennsylvania, State College..	H. P. Armsby....	Meteorology; fertilizer analysis; feeding experiments; dairying.
Rhode Island, Kingston.....	C. O. Flagg.....	Pot experiments; diseases of plants; poultry experiments.
South Carolina, Clemson College.....	E. B. Craighead..	Soils; analysis and control of fertilizers
South Dakota, Brookings.....	J. H. Shepard...	Chemistry of waters; diseases of plants; dairying.
Tennessee, Knoxville.....	C. F. Vanderford	Botany; entomology.
Texas, College Station.....	J. H. Connell....	Diseases of plants; entomology; feeding experiments; diseases of animals.
Utah, Logan.....	L. Foster.....	Feeding experiments; diseases of animals; dairying; irrigation.

Better a little farm held clear, than a big farm half paid for.

Agricultural Experiment Stations.—Continued.

STATION.	DIRECTOR.	Lines of Work in Addition to Chemistry, Horticulture, and Field Experiments.
Vermont, Burlington.....	J. L. Hills.....	Analysis and control of fertilizers; diseases of plants; entomology; feeding experiments; diseases of animals; dairying.
Virginia, Blacksburg.....	J. M. McBryde...	Diseases of plants; feeding experiments; diseases of animals; entomology.
Washington, Pullman.....	E. A. Bryan.....	Soils; forestry; feeding experiments.
West Virginia, Morgantown..	J. A. Myers.....	Meteorology; analysis and control of fertilizers; entomology.
Wisconsin, Madison.....	W. A. Henry.....	Soils; feeding experiments (pigs and sheep); diseases of animals; dairying; drainage and irrigation.
Wyoming, Laramie.....	F. P. Graves.....	Botany; waters; food analysis; irrigation.

Table of Agricultural Colleges on Page 287.

Canadian Experiment Stations.Dominion Experimental Farms,
Experimental Farms,Ottawa,
Nappan, N. S.,
Indian Head, Nw. T.,
Agassiz, B. C.,
Guelph, Ont.,William Saunders, Director
George W. Forrest, Supt
Angus McKay, Supt
T. A. Sharpe, Supt
James Mills, President

Ontario Agricultural College,

Strength of Ropes.

Hemp rope one inch in circumference will sustain a weight of 200 lbs; one and one-half inches, 450 lbs.; two inches, 800 lbs.; two and one-half inches, 1250 lbs.; three inches, 1800 lbs.; four inches, 3200 lbs.; five inches, 5000 lbs.; six inches, 7200 lbs. Hemp is twice as strong as manilla and wire ropes are fully twice as strong as hemp. To find what size rope you require, when roven as a tackle, to lift a given weight: Divide the weight to be raised by the number of parts at the movable block, to obtain the strain on a single part; add one-third of this for the increased strain brought by friction, and reeve the rope of corresponding strength. One sixth of forty tons is $6\frac{2}{3}$ tons, which, with one-third added, is 9 tons nearly, for which you should reeve a six inch or six and one-half inch rope.

Conversely—To find what weight a given rope will lift when rove as a tackle: Multiply the weight that the rope is capable of suspending by the number of parts at the movable block, and subtract one-fourth of this for resistance. Thus—8.9 tons, the strength of the rope, multiplied by 6, the number of parts at the movable block, minus 13.3, or one-fourth, gives 40.1 tons as the weight required.

Stone Work.

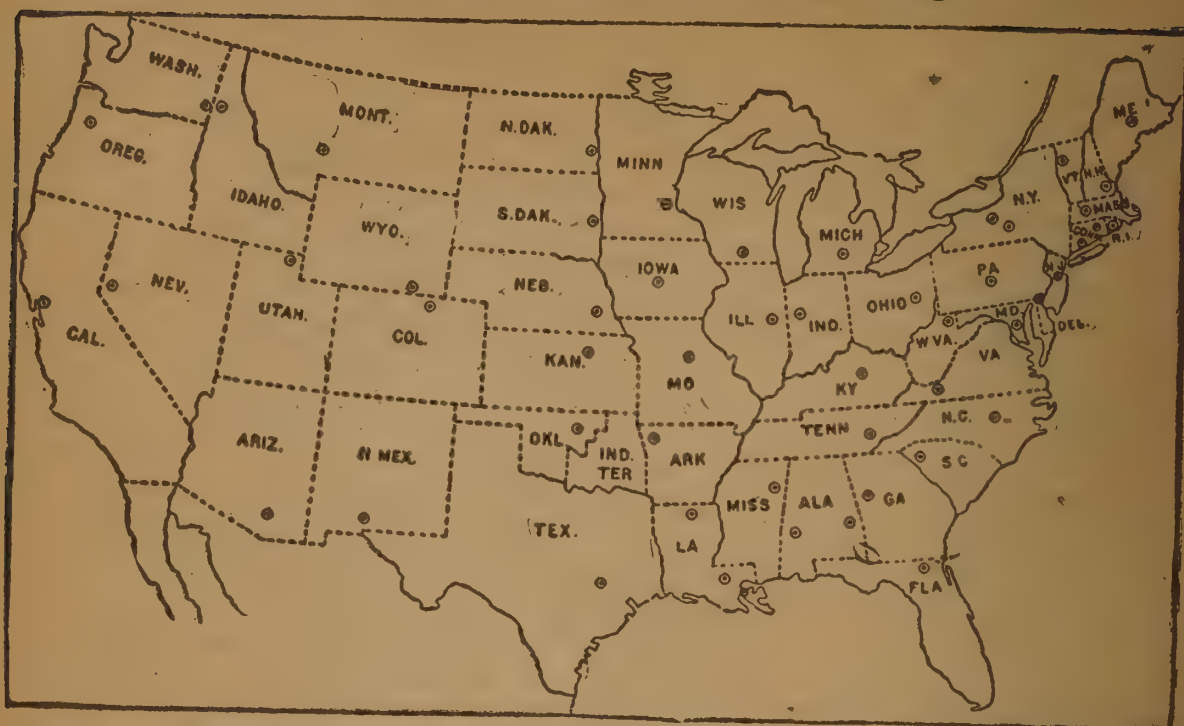
In doing stone work, allow a cask of lime for ten bushels of sand and a cord of stone for 100 cubic feet of wall.

Power of Waterfalls.

Multiply together in feet the width, depth, velocity per minute, fall and weight of a cubic foot of water ($62\frac{1}{2}$ lbs). Divide result by 33,000 and the answer in number of horse power will be obtained.

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All plan and no work will never pay the mortgage.

What the Experiment Stations are Doing.



THE DOTS SHOW LOCATIONS OF THE STATE AGRICULTURAL EXPERIMENT STATIONS IN THE UNITED STATES.

With most of the experiment stations the work dates from the passage of the Hatch act and the establishment of the experiment stations in 1888 or 1889. The number of bulletins now issued vary from 3000 to 4000 in the sparsely settled states and territories to 50,000 in the rich populous middle states; 13,000 to 14,000 would probably be a good average for all the states.

All the stations without exception send their bulletins to residents throughout the state free of charge who apply for the same to the officer in charge at his postoffice as specified below. The annual reports are sent free to all applicants as long as the edition lasts. As a rule this supply is somewhat limited, but is usually sufficient to meet the demand. The stations also send free of charge bulletins to all applicants outside the state, but reserve the right to discontinue these, provided the home demand becomes sufficiently large to exhaust the supply. It is the desire of all the stations to keep the list outside the state as small as possible, so as to be able to supply their home farmers first. As the work of the stations become better known it will undoubtedly be impossible to supply this outside demand. To meet this call, the U. S. department of agriculture at Washington, D. C., issues farmers' bulletins that are furnished free to all applicants; each issue on one topic, and includes the results obtained at the various stations.

As another evidence of the appreciation by the farmers of the experiment station is the fact that the correspondence has doubled and in many cases quadrupled during the past six years. In a great many states there is still a misapprehension on the part of some farmers. Stations do not distribute seeds, neither can they undertake investigations of a private nature, or which will benefit only a few, such as the analysis of a soil peculiar to a certain locality unless by so doing a large proportion of the farmers of the state are the gainers. In other words, the work of the station cannot be devoted to individuals. All questions concerning agricultural problems are answered and the stations are rapidly becoming the centers of agricultural influence. It is their desire to become better acquainted with every farmer in the respective states. Where a thorough understanding exists, the kindest feeling between station and people is the rule. Much valuable information can be obtained by simply asking your station for it. The institutions were founded for the farmers. Why not make full use of them? Each station receives \$15,000 annually from the federal treasury and in a few cases an additional sum from the state.

Before you begin to lift, look at the load.

FROM SEED TIME TO HARVEST.

Table of Crops.

Including the main general facts useful for reference at seed time and harvest for the leading specialties of the field, garden, orchard and hothouse.

Reliable reference matter in regard to the various crops is not easy to obtain, because experts hesitate to give definite statements intended to cover the widely varying conditions of climate, soil and care under which the various products are grown, while to average the data for the various sections and conditions is a long and difficult task. The following table, although not yet perfectly complete, is still incomparably wider in scope than anything of the kind ever before published.

The aim is to provide the foundation facts about the leading products; just such facts as are commonly left to guesswork or to scattering and possibly misleading statements. The facts, having been furnished by the specialists of the various agricultural stations and colleges, are doubtless as reliable as any that can at present be obtained. The aim has been to give the average opinion of these experts, omitting extreme statements and giving due weight to statements supplied by well-known specialists in their particular branches.

The New England schedule, for instance, is a result of comparison of carefully prepared schedules filled out expressly for this table by the various experts in the experiment stations of Maine, Vermont, New Hampshire, Massachusetts and Rhode Island. The combination of instructions of several stations gives the statements a wide range and it is hoped they will prove useful in all parts of the respective sections for which designed, while growers in other sections will find the information sometimes suggestive, and valuable for comparison. Wherever the various authorities seriously differed or where original suggestions were made, these are given as foot notes.

First section, New England. These data were supplied by the agricultural experiment stations and apply to Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut and fairly well, also, to parts of Canada in same latitude. For points of Canada further north, the rule is to allow one week for each 100 miles.

Second section, middle states. From the experiment stations of the middle section and applying to New York, New Jersey, Pennsylvania, Delaware, Maryland, Ohio, West Virginia.

Third section, central and western states. From the experiment stations of the central west and lake region. Applies to Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, North Dakota, South Dakota, Nebraska, Kansas, Colorado, Wyoming, Utah, Montana, Idaho. In the extreme northern sections, the elevated districts, and for sections in which irrigation is common, conditions prevail which somewhat modify these data.

Fourth section, southern states. Applies to Kentucky, Virginia, Tennessee, North Carolina, South Carolina, Georgia, Alabama, Mississippi, Arkansas, Louisiana, Texas, Oklahoma, New Mexico. The data are not intended to cover the conditions prevailing where irrigation is practiced, nor do they fully apply to the semi-tropical climate of Florida, southern Louisiana and southern Texas.

All work and no thought makes a dull farmer.

New England States.—Table of Crops.

Fruit.	Num. per aer. in field.	Dist'nce ap't ea. way, ft.	Yrs from setting to bearing.	Setting to full bear'ng.	Years good bearing.	Av. crop p yr. per acre in bu.	Av. price per bu.	Most desirable variety.
Apple	36	30 x 40	3 to 10	10 to 20	20 to 50	*175 bu.	50 cents.	†Baldwin.
Pear	121	18 x 20	3 to 5	6 to 15	20 to 60	100 to 200 bu.	50 cents.	Bartlett, Seckel.
Peach	170	16 x 16	2 to 5	6 to 8	5 to 10	50 to 300 bu.	\$1.50 to 2.00.	Crawford.
Plum	170	16 x 16	3 to 4	5 to 10	10 to 20	50 to 400 bu.	\$1.50 to 2.00.	Lombard, Abundance.
Cherry	108	20 x 20	3 to 4	5 to 8	20 to 40	100 bu.	\$2.00 to 3.00.	Richmond, Black Tartarian.
Quince	170	16 x 16	3 to 5	5 to 8	15 to 25	100 bu.	\$1.00 to 2.00.	Orange.
Grape	453	8 x 12	3 to 4	5 to 6	20 to 30	2 to 3 tons	2½ to 5 cts. per lb.	Concord.
Strawberry	7,280	1½ x 4	1	1	1 to 4	100 to 200 bu.	\$2.50.	Bubach (pistillate).
Currant	2,420	3 x 6	1 to 3	4	10 to 20	100 to 150 bu.	\$2 to 3.50.	Fays, Victoria.
Raspberry	2,420	3 x 6	2	4	6 to 10	50 to 100 bu.	\$3.50 to 5.	Cuthbert.
Blackcap	2,420	3 x 6	2	4	6	100 to 200 bu.	\$1.50 to 3.	Palmer.
Blackberry	1,556	4 x 7	2	4	6 to 10	100 to 200 bu.	\$2 to 3.	Snyder.
Cranberry	43,560	1 x 1	3	4 to 6	4 to 10	100 to 200 bu.	\$2.50 to 3.	Large, dark red sorts.

* Ten bu. per tree under best management, 5 as the average. 200 to 400 bu. per a. [Mass.]; 15 to 20 bu per tree [Maine].
† Baldwin has many defects, and more than one variety should be planted. [R. I. Station.]

Hay or Forage Crops.	Time to sow.	Amount seed per acre.	Best soil.	Am't manure or fertilizer, or both.	Time to harvest.	Average crop per acre.	Amount in Mixture.
Alsike clov.	Mar & Jul.-Aug.	12 to 15 lb.	Loam strong.	4 c m. or 500 lb f.	In bloom.	1½-3 tons hay.	4 to 6 lb.
Blue grass..	Any time.	8 to 10 lb.	Loam.	Org'nic nitrog'n	"	1-1½ "	2 to 7 lb.
Fodder corn	May 10-July 1.	12 to 20 qts.	Well dr'd str. l.	c 500 to 1000 lb.	From milk to glaze.	10-18 t gr fodder	
Hungarian..	May 10-July 15.	3 to 5 pks.	Loam.	500 lb & 5-8 cords	Heads well out.	3-4½ tons hay.	
Lawn Mixt..	Apr 10-Jun.-Aug	6 bushels.	Medium loam.	2000 lb.	"	2-3 "	
Orchard gr..	Apr. Aug., Sept.	1 to 3 bu.	Deep sandy "	600 to 800 lb.	In bloom,	2-2½ "	15 lb r. clo.
Red clover..	Early spr, July,	½ bu or 15-20 lb.	Med. to hvy "	d Potash man.	"	1½-2½ "	5 to 10 lb.
Timothy	Spring or fall.	15 to 25 qts.	Rich "	1 t lime 800 lb fer.	"	1-2½ "	10 to 12 qt.
Tim. & clov.	April or Aug.	12 qts, tim, 10 lb clo.	Rich, moist "	Same as red clo.	"	1½-2½ "	
White clov..	July 5-Aug. 20.	8 to 15 lb.	Heavy "	2000 lb fert.	"	1½-2 "	2 to 6 lb.
Red Top.....	Any time.	8 to 16 lb. clean.	Moist "	"	"	1½-2½ "	2 to 6 lb.
Field Mixt..	Apr. Aug. Sept.	10 lb tim, 6 Alsike 7 rt	Moist "	1 ton lime, 800 lb.	June 10 to July 10.	1½-2½ "	
Rye Fodder,	Aug. 1-Nov. 1.	5 pks to 3 bu.	San. to med "	500-1000 lb nit. fer	Bef. hds show much.	1½-2½ or 10 t gr.	e
Oats & peas.	April 1-30.	2 bu oats, 1-1½ peas	Strong "	General.	Bef. oats bloom.	2½-3½ or 10-12 "	
Cow Peas...	Early spring.	1 to 1½ bu.	Strong "	Potassic.	Blossom to full pods.	8-12 tons green.	
Soja Beans.	May 15-June 15.	1 to 2 bu.	Medium "	Potassic.	Pods well formed.	8-12 "	
Barley & p's	April 1-Aug. 10.	4 bushels.	Medium "	1000 lb general.	Barley heads in sight	6-10 "	

a Six lb. timothy or red top.
b Eight lb. timothy, 6 red top, 6 clover. [R. I. Station.]
c Manures rich in potash.
d One ton air-slaked lime, 500 lb. cloats, 200 lb. muriate of potash.
e "Very poor stuff." [Mass. station.]

New England States.—Table of Crops.—Continued.

Garden Crops.	Date of Planting.	Best Soil.	Best Fertilizers.	Amount of Seed per acre.	Distance between Plants.	Planting to Matur'ty	Average crop per acre.	Aver'g Value per a.
Asparagus	Apr & May or fall.	Sandy loam.	Man. n.soda, bone, pot	1 oz-50 ft. dr.	2 x 4 ft.	3 years.	300 dz. bnch.	\$150-400
Bean	May 10 to June 15.	Light, warm.	Stable manure.	1/2 to 1 1/2 bu.	3 x 4 ft. pole.	10-12 wks	75-100 bu.	20 to 70
Beet	Apr. 15 to July 1.	Medium loam.	Sta. man. and fert.	6 to 8 lb.	2 to 6 x 18 in.	3-4 mos.	100-300 bu.	100.
Cabbage	{ E'ly, Mar 15 to } { late, last May }	Heavy loam.	Large % pot. & nit.	1/4 to 1/2 lb.	{ early 2x3 ft } { late, 3x3 1/2 }			
Carrot	May 1 to June 20.	Med., rich loam.	Sta. man. or root fer.	2 to 3 lb.	3 to 3 1/2 x 30 in.	100-115 d.	500-4000 hds.	150
Celery	Apr 1 to May 1.	Rich, moist.	Nit. & pot. or sta. man.	2 oz.	6 x 4 to 4 1/2 ft.	150-160 d.	300 bu.	100-126
Corn, swt.	May 15 to July 1.	Sandy loam.	Stable man. & fert.	4 to 40 qts.	2 x 3 1/2 ft.	78-120 d.	300 dz. bnch.	200-250
Cucumber	May 15 to June 15.	Light "	" "	1/2 to 2 lb.	4 x 6 ft.	50-75 d.	50 bu.	25-100
Egg Plant.	May 15 to Apr 1.	Rich.	" "	1 oz-1000 pl'nt	2 1/2 x 4 ft.	150-175 d.	6000-10000.	200
Lettuce	May to Aug.	Light, sandy.	" "	1 oz-1000 pl'nt	4x6 ft.	65-75 d.	200-300 bbis.	200
Melon, wa.	May 15 to June 1.	" "	" "	4 to 5 lb.	4x6 ft.	125-150 d.	5000-10000 hd	200
" musk	May 15 to June 1.	" "	" "	2 to 3 lb.	3x5 ft.	125-150 d.	1000-1500.	150
Onion	Apr. 1 to May 30.	Medium loam.	" "	5 to 6 lb.	drills 1 1/2 ft.	130-150 d.	2000-3000.	150-250
Parsley	Apr. 1 to May 30.	Loam.	" "	1 oz-50 ft. dr.	" 1 1/2 ft.	3-6 mos.	200-300 bu.	200-250
Parship	April or May.	Deep, moist.	" "	2 to 6 lb.	4 in. x 2 1/2 ft.	150-175 d.	300-400 bu.	200
Pea	April to June.	New land.	" "	1 to 3 bu.	drills 2 1/2 ft. w.	45-75 d.	50-200 bu.	150
Pepper	c March 15.	" "	" "	1 oz-50 ft. dr.	18 in x 3 1/2 ft.	90-110 d.	100-300 bu.	150
Potato	Apr. and May.	Medium new.	Potash, phos., nit.	6 to 15 bu.	6 x 8 ft.	100-125 d.	3-10 tons.	100
Pumpkin.	June 1.	Sandy loam.	Phosphoric acid.	5 to 10 lb.	dr. 1 1/2 ft. ap't.	30-35 d.	5000 bnch.	150
Radish	Apr. 15 to July.	New.	Stable manure.	1 lb 1000 pl'nts	4 x 6 ft.	3-4 yrs.	10 tons.	150
Rhubarb.	e Apr 15 to May 15	Light loam.	Rich man. well rotted.	6 to 12 lb.	1 to 4x1 ft.	60-80 d.	60-250 bu.	100
Spinach	Apr. or Aug.	Sandy, light.	Well rotted manure.	1 1/2 to 4 lb.	4 1/2 x 6 ft.	100-125 d.	3-10 tons.	175
Squash	May	Rich, sandy loam	Old manure.	1/4 to 1/2 lb.	4x4 or 5x5 ft.	150-160 d.	200-400 bu.	200
Tomato	May	Light.	Phosphate.	1 1/2 to 3 lb.	3 in. x 2 ft.	60-75 d.	200-600 bu.	75-250
Turnip	April to Aug.							

a Feb. and Mar. under glass, April and May in open ground, transplant June to Aug. b Sow egg plant, Mar. 15 to April 1 under glass. Transplant about June 1st or after danger of frost is over. c Transplant peppers June 1st, or after frosty season. e May be transplanted in the fall.

Greenhouse Crops.	Date of sowing or planting.	Amount seed or plants per 100 ft. drill.	Distance ap't after last transplanting	Av. term planting to maturity.	Av. yield per 100 foot drill.	Average range of price.	Best kinds for forcing.
Asparagus	January.	20 to 100 plants.	5 x 7 in.	3 years.		6 to 25c. p bunch	Conovers.
Cress	f Any time.	1/2 oz.	1 in.	4 weeks.			Australian.
Cucumber	Nov. to Jan.	1/2 to 4 oz.	d 2 feet,	10 weeks.		25 to 50c p. dz.	White Spine.
Lettuce	Oct. to Feb.	1/2 to 1 oz.	8 x 8 in.	8 to 10 wks.	150 heads.	50c p doz.	Black Seed Simpson.
Rhubarb	January.	100.	1 ft. ea.way.	4 to 6 wks.	200 lb.	5 to 15c. lb.	Linnæus.
Grapes	May.	25.	4 feet.	4 to 5 mos.			Hamburg.
Strawberries	Pot-May & Aug.	4 to 5 in pots.		Varies.			Sharpless.

d Varies according to system. Hardy vegetables may be planted as soon as the soil can be worked. f Plants mostly collected.

New England States.—Table of Crops.—Concluded.

Field Crops.	Date of planting,	Best soil.	Amount of manure or fer. per acre.	Amount of seed per acre.	Weeks, pl't to m'tur'y	Average weight per bu.	Average value per acre, range value per bu.
Corn.....	May 1 to 25.	Sandy or clay loam	600-1000 lb for 6 c	8 to 12 qts.	13 to 17	56 lb.	26 to 50
Rye.....	Apr. & May or Sept.	Medium loam.	600 lb or 5 cords.	3 to 6 pecks.	40	56 lb.	14 to 40
Oats.....	April and May.	Strong "	500 lb.	2 to 3 bu.	11 to 15	32 lb.	30 to 60
Barley.....	April 1 to June 20.	"	500-800 lb or 5 c.	2 to 3 bu.	10 to 15	30 to 40	30 to 60
Buckwheat.....	June 1 to 20.	Light "	300 lb.	1 to 1 1/4 bu.	10 to 15	48 lb.	20 to 35
White beans.....	May or June.	Sandy "	500-600 lb.	8 to 16 qts.	8 to 14	60 "	16 to 20
Potatoes.....	April 15 to May 1.	Rich "	1500-1800 lb.	8 to 20 bu.	12 to 20	60 "	80 to 225
Field turnips.....	April 20 to June 20.	Sandy "	500 lb. or 7 c & 500 lb	1 to 1 1/2 bu.	12	60 "	200 to 500
Turnips, flat.....	July 1 to Aug. 3.	"	500-700 lb phos.	1 bu.	10	60 "	200 to 500
Mangels.....	April 15 to May 5.	Strong heavy loam.	1500 lb.	4 to 6 bu.	17 to 22	50 to 60	20 to 30 t.
Tobacco.....	April transpl. in June.	Sandy loam	Ad libitum.	*	9	1,400 lbs.	\$3 per ton.

* Tablespoonful of seed to each square rod of seed bed.

Middle States.

Garden crops.	Date of planting.	Best soil.	§ Best fertilizers.	Amount of seed per acre.	Row by distance in rows.	Time planting to harv.	Average crop per acre.	Average value per acre.
Asparagus.....	April.	Sandy loam.	Nitrate of soda.	4 to 5 lb.	4-5 ft x 1-2 ft.	†3 or 4 y.	75-120 bunch	\$200 to \$400
Bean.....	May 15 to Aug.	All soils.	Potash.	1 1/2 bu.	2-3 ft x 4-12 in.	35-50 d.	75-120 bush.	\$250 to 300
Beet.....	April to July.	Sandy loam.	Nitrate of soda.	5 to 6 lb.	12-18 x 4-6 in.	8-9 wks.	400-700 bu.	\$400 to 500
Cabbage.....	April to July.	"	Potash, lime.	1/4 lb.	†3 x 2-3 1/2 x 2 1/2 f.	150 d.	12,000 hds.	\$400 to 500
Carrot.....	April to June.	"	Wood ashes.	4 to 6 lb.	12-48 x 3-4 in.	4-5 mo.	400 bbls.	\$400 to 500
Celery.....	April.	Loam or muck.	Nitrate of soda.	2 ounces.	3-4 x 6-9 in.	5-6 mo.	1500 bunch.	\$150 to 200
Corn, Sweet.....	May to July.	Sandy loam.	All kinds.	8 to 10 qts.	3-3 1/2 x 3/4-2 ft.	75 d.	4000-6000 e'rs	\$40 to 75
Cucumber.....	May 15-June 15	Loam.	B. Y. manure.	2 lb.	4-5 ft ea way	75-90 d.	150,000 fruits.	\$250
Egg plant.....	April.	Sandy loam.	Stable manure.	5 ounces.	3x3 ft.	150-160 d.	10,000 fruits.	\$100 to 150
Lettuce.....	April to July.	"	Nitrate of soda.	4 to 5 lb.	12x12 in.	65 d.	43,500 hds.	\$300 to 400
Melon, Water.....	May 15-June 15	"	Man. & bone meal	2 to 3 lb.	7-8 ft ea way	120-140 d.	1500	\$100 to 200
" Musk.....	May 15-June 15	"	Man. & fertilizer.	5 to 6 lb.	5-6 ft ea way	120-140 d.	2500	\$150 to 300
Onion.....	March 15-May.	"	B. Y. man. & "	8 to 10 lb.	14-20 in., dr.	125-140 d.	500-600 bu.	\$100 to 200
Parsley.....	March to Apr.	Loam.	" " "	4 to 6 lb.	1-2 ft drills.	90-100 d.		
Parsnip.....	April to May.	Sandy loam.	Wood ashes.	1 to 2 bu.	18-36 x 4 in.	5-6 mo.	500-800 bu.	\$400 to 500
Pea.....	April to Aug.	Light soils.	S man, bone dust.	1 oz to 1000 plants	2 ft x 15-18 in	90-100 d.	100-150 bu.	\$75 to 125
Pepper.....	March.	Light sandy s'ls	Ben man. w'd ash	7 to 8 bu.	2 1/2-3 ft x 10-18	4-5 mo.	30,000-50,000.	\$100 to 150
Potato.....	April to May.	Sandy loam.	S. manure.	4 to 5 lb.	8-10 ft ea way	120-150 d.	100-300 bu.	\$100 to 150
Pumpkin.....	May to June.	Light soils.	Nitrate of soda.	1/4 lb to 1000 plants	10-18 in drs.	35-45 d.	3 to 11 tons.	\$100 to 150
Radish.....	Mar. to April.	Sandy loam.	B. Y. manure.	4 to 5 lb.	4 ft. x 2-4 ft.	2 yrs.	20,000 bunch	\$200 to 250
Rhubarb.....	April 15-May.	"	S man & bone dust	10 to 12 lb.	12-18 in. drs	30-40 d.	5 to 10 tons.	\$100 to 150
Spinach.....	April or Oct.	Light soils.	Stable manure.	4 to 5 lb.	6-8 ft ea way	120-150 d.	3 to 11 tons.	\$25 to 100
Squash.....	March or Apr.	Sandy soils.	Nitrate of soda.	1/4 lb.	4-5 x 4 ft.	150 d.	400 bu.	\$100 to 150
Turnip.....	July 15-Aug. 15	Sandy or gravel.	Stable manure.	* 1/2 lb drills.	1 1/2-2 1/2 ft drs.	60-70 d.	600-1000 bu.	\$75 to 125

* 3/4 lb broadcast.

† From seed.

‡ Early, 28x16 in. to 3x1 1/2 ft.

§ B. Y. Barn yard. S-Stable.

Middle States.—Table of Crops.—Continued.

Field Crops.	Date of planting.	Best soil.	Amount manure or fertilizer per acre.	Amount seed per acre.	Weeks to Mat'ry.	Average crop per acre.	Aver'g value per bu	Standard Variety.
Corn.....	Apr 20-May 20	Medium loam.	5 8-20 t man, 300 lb f.	6 to 8 qts	16	32 to 45 bu.	40c - \$1	Pride of the No'th, L'm'g
Rye.....	Sept. 1-Oct. 1	Sand or grav'y lm	200 lb diss'lv'd bone	1½ bu..	40 to 43	14 to 15 bu.	35 to 70c	White.
Oats.....	April & May.	Moist clay loam.	150 lb a phos, nitr.	2 to 2½ bu	16 to 17	30 to 35 bu.	20 " 35c	White.
Barley.....	April & May.	Loam.	Not usually man'd.	2 to 2½ bu	16 to 17	22 bu.	50 " 60c	
Buckwheat...	June & July.	"	Phosphate.	¾ - 1½ bu	8 to 10	20 to 35 bu.	45 " 55c	
White beans..	May & June.	Sandy loam.		1½ bu.	13 to 14	20 bu.	\$.90-1.25	
Potatoes.....	April to May	Loam.	300 to 1000 lb fert.	8 to 15 bu	14 to 22	75 to 200 b	30 " 75c	Rose, Carmen, 3, Rural 2
Field Turnips	June.	a "	Com'l fert.	3 fb.	13 to 15	10-15 tons.	20 " 30c	L. I. Improved.
Turnips, flat..	July.	"	Not manured.	10-15 bu	10 to 12	23-28 tons.	15 " 25c	White Globe.
Mangels.....	May.	"	10-20 tons barn man	20 qts.	8 to 10	10 to 12 bu.	56c	Long red.
Flax.....	May.	Limestone loam.	½ to 2 bu of seed.	c	15 to 20			Rega, White Bloss. Dutch
Tobacco.....	Sept.	Sandy loam.	Com'l fert.	2 bu.	41 to 43	15 to 18 bu.	60c - \$1	Rochester red.
Wheat.....	Sept.	Loam.	10 t man, 300 lb fer					

Hay or Forage Crops.	Time to sow.	Amount seed per acre.	Best soil.	Amount manure or fertilizer or both.	Time to harvest.	Av crop per a.
Alfalfa.....	Apr 20 to May 30.	25 to 30 fb.	Deep, sandy lo'm	266 lb phos., 133 lb potash.	In bloom.	17 tons green.
Alsike clover	Early spg or sum	6 to 10 fb alone.	Cool, damp.	" " "	July.	1 to 2 tons.
Blue grass....	Late Aug.	12 to 28 fb alone.	Limestone, med l	" " "	Us'ly past'd	2 tons
Fodder corn...	May 1 to June 15.	12 quarts.	Clay land.	20 tons man. or 500 lb fer.	Sept.	10 to 15 tons gr.
Hungarian....	June and July.	1½ bu.	Clay land..	400 lb fer.	Aug. 1.	4 to 6 tons gr.
Lawn mixt...	Spring.					
Orchard grass	Spring or fall.	20 to 25 fb.	Rich, damp lo'm	400 lb fer.	June 1.	1 to 2 tons.
Red clover....	Apr-May or Sept.	12 to 20 fb.	Fine limestone l	150 lb bone, 50 lb mur pot.	Jun 20-Jul 1	2 tons.
Timothy.....	Apr, May or Sept	25 fb.	Clay loam.	5 tons man. top dressed.	July.	1½ tons.
Timothy & cl	May or Sept.	20 fb.	Clay loam.		July.	1 to 2 tons.
White clover..	May.	c 25 fb.	Rich loam.	Same as timothy.	Pas. & lawn	1½ tons.
Red top.....	May.	25 fb.	Rich moist.	" " "	July 1.	2 tons.
Field mixt....	Spring or fall.	40 % tim, r cl, 20 % als cl.	Medium loam.		July 1.	5 to 8 ton gr.
Rye fodder....	Sept. 1.	2 to 2½ bu.	Light.	10 ton man, 300 lb fer.	May or Jun.	8 to 12 ton gr.
Oats and peas	May to Aug 1.	1 to 2 bu. each.	Rich loam.	" " "	Je. 20-Aug 10	4 to 6 ton gr.
Wheat fodder	Sept.	2 to 2½ bu.	Clay land.	" " "	May or Jun.	4 to 6 ton gr.
Cowpeas.....	June 1.	1 bu.	Warm loam.	200 s phos, 50 lb pot.	Sept. 1.	6 ton.
Soia beans....	June 1.	1 bu.	Warm loam.	" " "	Sept. 1.	6 ton.
Barley & peas	July to Aug.	1 to 2 bu. each.	Moist, rich loam.	200 lb fer or 5 tons man.	8 weeks.	6 to 10 ton.

^f In five cuttings or 3 tons hay. ^e Not sown alone.

^a Will grow on thin soil. ^b Manure for corn should be applied in fall or winter[N. J. Station]. ^c A spoonful will grow plants for an acre. ^d Potatoes by common methods produce 75 bu., good farming 200 [Cornell station].

Middle States.—Continued.

Greenhouse Crops.	Date of sowing or planting.	Amt. of seed or plants per 100 ft. of drill.	Distance apart transpl'tg.	Av term from planting to maturity.	Average yield per 100 feet of drill.	Average range of price.	Best kinds for forcing.
Asparagus.....	Nov.-Dec.	50	6 in.	a 3 to 4 weeks		5 to 30c bunch.	Conover.
Cress.....	Oct.-Nov.	200	6 in.	6 to 8 "		20 to 40c dozen.	Water.
Cucumber.....	Oct.-Feb.	50-66	18 in. x 24 in.	3 months.		25 to 50c "	English and White Spine.
Lettuce.....	Sept. on.	150	7 to 8 in.	8 to 12 weeks.	150 head.	10 to 15c "	Boston Market, Gr. Rapids.
Rhubarb.....	Nov.-Dec.	100	6 1/4 ft.	a 4 to 5 "	200 pounds.	5 to 15c lb.	Linnaeus and Victoria.
Grapes.....	Feb.-Mar.	100	1 ft.	2 to 3 years.	40-50 lb per vine.	\$2 to \$5 qt.	Black Hamburg.
Strawberries.	Nov.-Dec.	In 5 in. pots.	6 in.	8 to 10 wks.			Many kinds.
Spinach.....	Oct. on.	250		4 to 7 "			
Tomato.....	Dec. 15.		2 1/2 x 2 1/2 ft.	4 months.	12 lb p. plant.	10c per lb.	Beauty.

a From setting in house. b Roots are packed close together in greenhouse.

Fruit.	Number per acre.	Distance apart each way.	Yrs from setting to bearing.	Setting to full bearing.	Years of good crop bearing.	Average crop per year per acre.	Most desirable variety.
Apple.....	35 to 40.	30 x 40 ft.	6 to 10	12 to 15	15 to 40	100 bu.	Bartlett.
Pear.....	75 or 300	(24 standard. 12 dwarf.)	3 to 8	6 to 10	40 to 60	60 to 75 bush.	
Peach.....	170	16 x 16	2 to 4	3 to 5	6 to 10		
Plum.....	170	16 x 16	2 to 3	3 to 4	15 to 25		
Cherry.....	40 to 160	y 16 x 18	2 to 4	5 to 7	20		
Quince.....	300	12 x 12	4-6, 8-10	6-8, 10-12	20	25 to 40 "	Early & late Crawford, Elberta.
Grape.....	200 to 300	12 x 15	3 to 5	5 to 8	15 to 20	30 to 60 "	Lombard, Abundance.
Strawberry..	14,520	1 x 3	3 to 5	4 to 6	10 to 15	1 1/2 tons.	Black Tartarian, Richmond.
Currant.....	2,200	4x5 to 5x5	1	1	1	125 bu.	Orange, Champion.
Raspberry...	2,400	3 x 6	1	2	3 to 4	60 to 75 "	Concord, Catawba.
Blackcap....	2,400	3 x 6	1	2	3 to 4	75 to 100 "	Clyde, Haverland, Bubach.
Blackberry..	1,900	4 x 6	1	2	6 to 8	100 bu.	Cherry. Cuthbert.

y For sour. Sweet, 30 to 45.

Central and Western States—Table of Crops.

Greenhouse Crops.	Date of Planting.	Amount seed or plants per 100 ft. drills.	Distance apart after last transplanting.	Av. term planting to maturity.	Average yield.	Average range of price.	Best kinds for forcing.
Asparagus...	January 1.	100 plants.	2 x 1 ft.	18 to 30 ds.			Palmetto.
Cress.....	January 1.	1/2 oz.	6 x 2 in.	30 to 50 ds.			Extra curled.
Cucumber...	*Oct. 15 to Mch. 15	30 plants.	b 2 ft. x 6 in.	3 to 4 mos.		50c. to \$2 per dz.	White Spine, Tel. Mod'l
Lettuce.....	†Oct. 1, Feb. 1.	150 to 300 plants	c 6 x 8 in.	12 to 16 wks	2 lbs. sq. ft.	15c. to 40c. per dz	Grand Rapids or B.mkt
Rhubarb.....	January 1.	100 plants.	1 x 3 ft.	20 to 30 ds.			Linnaeus.
Grapes.....	March 15.	30 plants.	3 feet.	2 to 4 yrs.			Black Hamburg.
Strawberries	†Pot. July-Aug.	6 in pots.	6 x 6 in.	6 mos.			Sharpless or Bederw'd
Spinach.....	Sow Aug. 15-Jan. 1	1 oz.	2 x 12 in.	8 wks.			Savoy.
Tomato.....	Dec.		2 1/2 x 2 1/2 ft.	4 mo.	12 lbs. per pl	10c. per lb.	Beauty.

* Sow Sept. 1 to Jan 1. † Sow Aug. 15 to Oct. 1, Nov. 15 to Jan. 15. ‡ Force Jan-Mch. 1. b Or 2 x 2 feet. c Or 4 x 4 or 6 x 6 in.

Garden Crops.	Date of Planting.	Best Soil.	Best Fertilizers.	Amount of seed per acre.	Distance between plants.	Planting to Matur'ty	Average crop per acre.	Aver. value per a.
Asparagus	Apr. 15-May 1.	Deep, light loam.	Rotted manure.	4-5 lb. 3,500 pl	3 to 4 ft. x 4 ft.	2 to 3 yrs.	4 to 6 M. beh	\$300-400
Bean	May 1-15.	Sandy "	Rotted stable manure.	1 to 1½ bu.	4½ to 2 x 3 ft.	2 to 5 mo	20 bu.	20
Beet	Apr. to June.	Deep "	Bone meal and potash	5 to 6 lbs.	1½ to 3 ft.	2½ to 4 mo	15 to 20 tons	100-150
Cabbage	Apr. 15-25, to July	Rich "	Rotted stable manure.	4 to 5 oz.	2½ to 4 x 1½ to 3	3 to 4 mo	8 to 10 M. hd	250-300
Carrot	May 1.	Rich "	"	3 to 4 lbs.	1 to 1½ ft.	3 to 5 mo	400 to 600 bu	300
Celery	Apr. 25, field pl.	Rich muck.	"	1 lb., 30M. pl	3 to 5x3 to 6 ft.	2 to 5 mo	15000 to 20000	300-400
Corn, sw.	May 1-15.	Deep sandy loam	"	8 to 12 qts.	4 to 4x5 to 5 ft.	2 to 3 mo	600 doz.	30-50
Cucumber	May 10-15.	Light loam.	"	2 lbs.	1½ to 3 x 3.	2 to 4 mo	1200-1400 dz.	150-250
Egg plant.	Apr. 1 sd-June pl.	Rich "	Phos'ate or bone, meal	½ to 1 lb.	1½ to 2 x 1 ft.	1½ to 2 mo	14,000.	2,000
Lettuce	cMar. 15, seed.	"	Rotted stable manure.	2 lbs. 30M. pl	6 to 8 x 8 ft.	3 to 4 mo	2,000.	75-100
Melon, wa	May 10-20.	"	"	2 to 3 lbs.	4 to 6 x 6 ft.	3 to 4 mo	2,000 to 3,000	100-125
" muck	May 10-20.	"	"	4 to 5 lbs.	15 in. x 1 to 2 ft	4 to 5 mo	300 to 500 bu	100
Onion	Apr. 10-20.	Rich muck.	Bone, meal and ashes.	2 to 3 lbs.	15x12 or 24x6 in.	2 mos.	300 bu.	150-500
Parsley	Apr. 10-20.	Deep, rich loam.	Rotted stable manure.	4 to 5 lbs.	3 ft.	3 mos.	100 to 125 bu	100-150
Parsnip	Apr. 10-May 1.	Sandy "	Super-phosphate.	1 to 2 bu.	1½ x 2 ft.	4 to 5 mo	300-400	300-400
Pea	April.	Rich, light loam.	Rotted barn or sta. ma.	½ to 2 lbs.	1 to 3 x 3 ft.	3 to 3½ mo	200 bu.	30-125
Pepper	Sd. Mar.-pl. June	" heavy "	"	8 to 12 bu.	6 to 8 x 8 ft.	4 mos.	300 to 2,000	75-100
Potato	Apr. 15-June 10.	" sandy "	"	4 to 6 lbs.	15 x 2 in.	1½ to 2 mo	200-300	30-150
Pumpkin	May 10-20.	" sandy "	"	6 to 10 lbs.	5 to 6 x 5 to 6 ft.	2 yrs.	75-100	30-150
Radish	Apr. 15-25.	" sandy "	"	1,500 plants.	1 to 2 ft. drills	1½ to 3 mo	400 bu.	100-150
Rhubarb	Apr. 15.	Deep, rich "	"	10 to 15 lbs.	* 6 to 8 x 8 ft.	3 to 5 mo	400 bu.	100-150
Spinach	Apr. or Aug.	Deep, rich "	"	3 to 4 lbs.	4 to 5 x 4 to 5 ft	2 to 4 mo	400 to 500 bu	100-125
Squash	May 10-June 10.	Rich, sandy "	"	4 oz. or 1800 pl	18 to 24 in. x 4 ft	2 to 4 mo	400 to 500 bu	100-125
Tomato	cMay 15-June 5, pl	Deep, rich "	"	½ to 2 lbs.	* Bush squashes, 5 x 5 feet.			
Turnip, sm	Apr. 15 or Aug. 1.	Loam.	"					

α March 1 to 15 in hotbed.

β Feb. 15 to Apr. seed.

c Apr. 1, hotbed.

d March, seed.

* Bush squashes, 5 x 5 feet.

Field Crops.	Date of planting.	*Best soil.	Amount manure or fert. per acre, if any.	Amount of seed per acre.	Weeks pl'tnto m'tu'y	Av. crop per acre in bu.	Av. range value per bushel.	Standard variety.
Corn	Apr. 20 to May 20.	Black or sandy loam	10 lds yard ma.	6 qts.	18	d 36 to 50	20 to 50 c.	k Sanford.
Broom Corn	Apr. 20 to May 20.	" "	15 to 20 cds ma.	1 to 2 bu.	18	35 to 40 25	70 to 75 c.	Winter.
Rye	Sept. 1 to 31.	Light Clay	" "	2 to 2½ bu.	12 to 14	e 40 to 50	18 to 40 c.	Gray Norw'y
Oats	Apr. 1 to May 1.	" "	" "	2 bu.	11 to 13	f 30 to 50	25 to 60 c.	Brown.
Barley	Fall or spring.	" "	" "	1 to 2 bu.	10 to 12	g 16 to 30	50 to 60 c.	Silver Hull.
Buckwheat	June.	" "	5 cds per acre.	1½ bu.	12	14 to 25	40c to \$1.00	Pea.
White Beans	May 10 to June 10.	" "	Seldom any.	5 to 10 bu.	10 to 20	80 to 200	10 to 70 c.	Hebron.
Potatoes	April 1 to June 1.	Sandy Clay	10 cords.	1½ to 3 lbs.	14 to 16	600	2 to 25 c.	Aberdeen.
Field Turnips.	May.	Loam or muck.	20 loads	1 to 6 lbs.	10 to 16	500 to 700	2 to 20 c.	
Turnips, flat.	July 15 to Aug 30.	Sandy loam.	15 to 20 cds. ma.	6 to 8 lbs.	22 to 24	g 500-1000		
Mangels	Apr. 1 to May 15.	Loam.		2 to 3 pecks.	42			
Flax	Apr. 1 to May 15.							

* In the prairie section there is less choice of soil. Beans and buckwheat may be grown on the lighter soils. In some parts of Illinois, oats, barley, potatoes, etc., may be sown as early as March 15. b July 15 to Aug 15—Wis. d 60 to 80—Ill. c 15—Wis. f 15—Wis. g 20 tons—Ill. k Pride of the North—Wis.

Central and Western States.—Concluded.

Hay or Forage Crops.	Time to sow.	Amount seed per acre.	Best soil.	Amount of manure or fert. or both.	Time to harvest.	Average crop per acre.
Alfalfa.....	April 1 to June 1.	20 to 30 lbs.	Deep, sandy loam		In bloom.	3 tons
Alsike clover....	Mch. 1 to Apr. 10.	3 to 5 lbs.	Moist		In bloom.	2½ to 3 tons.
Blue grass.....	Fall or early Spr.	1 to 2 lbs.	Clay		Just before ripe. (Sept)	1½ to 2 tons.
Fodder corn.....	May 15 to June 15.	1 to 6 pcks.	Sandy	But little is used.	In bloom.	12 to 16 t. green
Hungarian.....	May 15 to June 15.	2 to 3 pcks.	Sandy			2½ tons.
Lawn mixture....	Sept. or Apr.	2 to 2½ bu.	Clay	In some sections the		
Orchard grass....	Sept. or Apr.	½ to 2 bu.	Clay	barnyard ma-	June 1 to July 1.	2 tons.
Red clover.....	Mch. 1 to Apr. 10.	10 to 15 lbs.	Sandy	nure is used on	June 20 to July 5.	2 to 3 tons.
Timothy.....	Fall or early Spr.	6 lbs.	Clay		June 20 to July 10.	2½ tons.
Timothy & clov.	Mch. 1 to Apr. 10.	3 tim. and 6 clover	Loam.			2½ to 3 tons.
White clover....	Mch. 1 to Apr. 10.	8 to 10 lbs.	Sandy loam.	corn; 10 to 20		
Red Top.....	Sept. or Apr.	12 lbs.	Compact clay.	loads per acre.	r June 10 to July 1.	1½ to 2 tons.
Field mixture....	Sept. or Apr.		Loam.		June 20 to July 15.	2 to 3 tons.
Eye fodder.....	Aug. 15 to Sept. 15	1½ to 2 bu.	Any soil.		July 15.	
Oats and Peas...	Apr. 1 to 15.	2 bu. peas & 1 oats	Clay.		Sept.	3 to 4 tons.
Cowpeas.....	May 10 to 25.	2 to 3 pcks.	Any.		Sept.	2½ to 3½ tons.
Soja beans.....	May 10 to 25.	2 to 3 pcks.	Any.		July.	
Barley and Peas	Apr. 1 to 15.	1½ bu. barley & 2 ps	Heavy.			

† Illinois gives the following limits: Fodder corn, to July 1; Hungarian, to July 15; cowpeas, to July 1; soja beans, to July 1; alfalfa, March 20 to April 20; alsike, to April 30. r For seed, July 1 to 15.

Fruit.	Numb. per acre in field.	Dist'nce ap't ea. way, ft.	Yrs from setting to bearing.	Setting to full bearing	Years good bearing.	Average crop per year per acre.	Average price per bushel.	* Most desirable variety.
Apple.....	35 to 40	32 to 40	5 to 8	10	15 to 40	300 to 500 bu.	d 15c. to \$1.00.	B'dwin, N.Spy, Old'gh, Min'r
Pear.....	108	18 to 25	3 to 10	12	25 to 50	300 to 600 bu.	e 50c. to \$2.00.	Bartlett, Howell, Anjou.
Peach.....	150 to 175	16 to 20	2 to 4	4	8 to 12	400 to 600 bu.	50c. to \$1.00.	Elberta, St. John.
Plum.....	150 to 200	16 to 20	3 to 5	8	6 to 25	100 to 600 bu.	50c. to \$1.50.	Lombard, De Soto.
Cherry.....	150 to 175	16 to 20	4 to 6	6	15 to 40	100 to 200 bu.	\$1.00 to 2.00.	Montmorency, Early Rich'nd
Quince.....	360	10 to 12	3 to 5	6	15 to 25	100 to 200 bu.	\$1.00 to 1.50.	Orange.
Grape.....	400 to 450	6-10x8-12	3 to 4	5	25 to 30	3 to 5 tons.	\$1.00 to 3.00.	Concord, Worden.
Strawberry.....	7 to 12 M.	3½-4 x 1-3	1	2	2	100 to 300 bu.	\$1.50 to 2.00.	Warfield, Haverland.
Currant.....	2,175	4-6x5-6	2 to 3	4	5 to 20	100 to 200 bu.	\$1.50 to 3.00.	Victoria, Cherry.
Raspberry.....	2,420	6-8x3-5	2 to 3	3 to 4	5 to 15	50 to 150 bu.	\$1.25 to 2.50.	Cuthbert, Turner.
Blackcap.....	2,420	7-8x3-5	2 to 3	3 to 4	5 to 15	50 to 150 bu.	\$1.50 to 3.00.	Palmer, Gregg, Ohio.
Blackberry.....	1,800	7-8x3-5	2 to 3	3 to 4	5 to 15	50 to 150 bu.	\$1.50 to 1.75.	Snyder, Taylor.
Cranberry.....	10 to 15 M	1 or 2	3	4	5 to 20	c 200 bu.		

a Illinois and Wisconsin prefer 30 x 30 feet. † Stations agree that varieties of the same fruit vary greatly in age of bearing.

b Sixty to 100 bushels.—Illinois; 80 bushels a good crop.—Wisconsin. c One hundred bushels a good crop.—Wisconsin.

* Differs greatly in different localities. ‡ Indefinite.—Illinois. d 60c.—Illinois. e \$1.00.—Illinois.

Southern States—Table of Crops.

Garden and Field Crops.	Date of planting.	d Best kind of soil.	e Best kinds fertilizers.	Amount of seed per acre.	Distance between plants.	Planting to harvest.	Average crop per acre.	Av. val per acre.
Asparagus	April.	Very rich, moist.	Man., pot., ph. a.	4 to 5 lbs.	2 x 4 ft.	3 years.		
Bean, bush	Mch. 1 to May 1.	Light loam.	Manure, pot.	1 to 2 bu.	2 to 3 in. x 3 ft.	7 to 8 wks.	90 to 100 bu.	\$200.
Beet.....	Feb. 15 to Apr. 15.	Loam.	Stable manure,	2 to 4 lbs.	4 in. x 3 ft.	8-11 wks.	400 to 600 bu	
α Cabbage.	Mch. to May.	Light loam.		1 to 1½ lb.	2x3 ft. to 3x4 ft.	14 weeks.	10 tons.	200-500.
Carrot.....	April.			4 lbs.	2 to 3 in. x 3 ft.	8-11 wks.	400 to 600 bu	
Celery.....	Feb., Mar.	Rich loam.	Manure and potash.	1½ to 3 lb.	8 in. by 4 x 5 ft	18-30 wks.	17,400	300.
Corn, sw ¹	April.	Rich light loam.	2 T man. 200 lbs. phos.	8 to 10 qts.	3x3 or 3x4 ft.	13-17 wks.	30 to 50 bu.	30.
Cucumber	Mch 15 to May 10.	"		1 to 2 lbs.	hills 4x4 to 5x8	10-14 wks.	500 doz.	50.
δ Egg pl't.	Mch. 1. b	"		10 oz.	3½ x 2	18-22 wks.		
Lettuce...	Feb. 15 to May.	"		1 to 1½ lbs.	1 x 3 ft.	6-10 wks.	1000-1500 doz	300.
Melon, wat	Mch. 1 to May 10.	"		4 to 7 lbs.	8 x 8 ft.	17-20 wks.		
Melon, mk	Mch. 1 to May 10.	"		3 lbs.	8 x 8 ft.	16-20 wks.		
Onion.....	Feb. 1 to Apr. 10.	"		75 to 7 lbs.	15 in. to 2x6 in	20-24 wks.	300 bu.	175-200.
Parsley...	Feb., Mar.	Loam or muck.			3 ft. x 2 in.			
Parnip.....	Feb., Mar.	Loam.			3 ft. x 3 in.			
Pea.....	Feb. 15 to Apr. 1.	Deep loam.			3 ft x 2 in-5 ft x 3	22-28 wks.		
Pepper.....	Set Apr., May.				3 ft. x 1½ ft.	6-10 wks.	15 to 100 bu.	
Potato.....	Feb. 15 to Apr. 15.	Light loose loam		1½ to 2 bu.	3 ft. x 1½ ft.	18 weeks.		
Pumpkin...	Apr. 1 to May 1.	Rich light loam.		8 to 10 bu.	3 x 1 to 1½ ft.	11-15 wks.	g 200-300 bu.	60-100
Radish.....	Mch. to May.	New soil.		4 to 7 lbs.	8 x 8 ft.	17-20 wks.		
Squash, w	Mch. 15 to May 10.	Rich light loam.		8 to 12 lbs.	15 x 2 in.	4½-7 wks.	300 to 400 bu	
τ Tomato...	Jan. 1 Feb. 10.	Rich sandy loam.	Nitrogenous.	3 to 6 lbs.	4 ft.	17-20 wks.	400 to 600 bu	100-125
Turnip....	Aug. or Feb. to Apr			4 to 9 oz.	3 to 5 ft.	14-20 wks.	5 tons.	
Corn, field	Mch. 15 to May 15.			2 to 6 lbs.	3x3 or 3x4 ft.	8-12 wks.	12½ to 25 bu.	
Oats.....	Spring and Fall.			8 qts.		20 weeks.	28 bu.	
				3 bu.				

^a Hotbeds June 4, transplanted Feb. 15. (Texas.) ^b Started in greenhouse. ^c Set outside Mch. 1 to May 15. ^d Our soil is quite uniform, consisting of dark clay loam underlaid by reddish clay. (Kentucky.) ^e All the Southern experiment stations chiefly recommend stable manure for all garden vegetables. ^f Sets, 10 bushels. ^g 75 bu. (Texas.)

Greenhouse crops.	Date sowing or planting.	Am't. seed or plants per 100 feet of drill.	Dis. ap't after planting last transp'g.	Average yield.	Average range of price.	Best kinds for forcing.
Cucumber...	October 4	Sown in trays and	12 ft. 120 days	40 per vine	30 cts. per doz.	Arlington, Telegraph and Imp. Sion.
Lettuce.....	September 7	transpl't'd to beds 100	6x6 to 10x10 " 45 "		25 to 40 cts. per doz.	Imp. Cabbage, Denver, Rawson's or Ey. Simpson, Linnaeus.
Rhubarb....	February		1 ft. 4 wks.			

Southern States.—Concluded.

FRUITS.	No. per ac'e in field.	Distance apart each way.	Yrs. set-ting to bearing.	Setting to full bearing.	No. years good crop bearing.	Av. crop per year per acre. Bushels.	Average price per bushel.	Most desirable variety.
Apple.....	25 to 50	30 to 40 feet	3 to 4	6 to 10	25 to 50	100	\$0.30	York Imperial, Blush.
Peach.....	100	20 "	2 to 3	4 to 5	3 to 10	75	1.00	Early and Late Crawford.
Pear.....	108	20 "	3 to 4	5 to 8	20 to 65	100 to 200 <i>b</i>	1.00	Bartlett, Kieffer. <i>f</i>
Plum.....	193	15 "	3 to 4	5 to 6	4 to 20	50 to 100 <i>b</i>	1.00	Imp. Gage, Wild Goose.
Cherry.....	108 to 150	14x16 to 20x20	3 to 4	6	6 to 25	75 to 100	1.25	Reine Hortense, Tartar'n.
Quince.....	302	12 "	4 to 5	6 to 8	15	100	1.00	Orange.
Grape.....	600 to 800	6x9 to 8x8 "	2 to 3	3 to 5	10 to 50	150 to 300 <i>b</i>	0.75	Concord.
Strawberry..	5,445	2x4 "	1 to 2	2	1 to 2	150 to 200 <i>d</i>	1.25	Haverland.
Currant.....	2,722	4x4 "	2	4 to 5	6 to 8	150 to 200 <i>e</i>	1.75	Red Dutch.
Raspberry...	2,420	6x3 "	2	3	5	75 to 200	2.00	Cuthbert, Turner.
Black Cap...	2,420	6x3 "	2	3	5	75 to 200		Gregg.
Blackberry..	2,420	6x3 "	2	3 to 4	5 to 6	75 to 200	1.50	Taylor, Sneider.

b 800 to 1600 (Virginia). *d* 300 to 600 (Virginia). *e* 200 to 300 (Virginia). *f* Dwarf, Rutter.

The Pacific Coast.

As for the Pacific coast section, it has been thought hardly practicable at present to compile a useful crop table, because of the diversity of climate and products. Concerning this matter, Director Hilgard of the experiment station at Berkeley, Cal., writes:

California is 9½ degrees from north to south, and in transverse direction ranges from a semi-tropic to a frigid climate. It would be quite impossible to compile anything that would even approximately represent the conditions of the whole state, or even of a single cross-section of it. It might be done for this single locality; but this being quite an exceptional climate, hardly represented elsewhere on the Pacific coast, it would convey a wholly erroneous impression. Taking the sowing time of the cereals, for instance: That for wheat ranges from October to the end of March, not only taking the state as a whole, but some single portions of it. The product ranges all the way from ten to fifty bushels per acre, and it is hard to say what would be a correct average for the whole state. Corn is planted in this locality all the way from February to May; sometimes after the last rain has fallen, and yet makes a fair crop in ordinary years. The prune product varies all the way from 200 to 1000 pounds to the tree; and this and other deciduous fruits, which in the east need a rain every few weeks in order to stay on the tree and mature, here endure a five-months' drouth, season after season. Grape cuttings planted at Fresno sometimes bear a crop the second year: hereabouts it takes five, and the average crop is but half of that of Fresno; and so on through a long list of data which it would be quite impossible to report correctly, and so as to convey their true import, without writing a book.

Legal Weights per Bushel in the United States.

The great variations in the weights of some crops indicate the necessity of a uniform standard. Apples are 44 pounds per bushel in Maine, 50 in Connecticut, New Jersey and Arkansas; 57 in Wisconsin, and not specified elsewhere. Hair is 11 pounds per bushel in Maine, but in all other states mentioned, Virginia, Georgia, Florida, Alabama, Tennessee, Kentucky, Illinois, Kansas and Nebraska, it is eight pounds. Bran is twenty pounds per bushel, but is not stated in the South and Northwest. Native bluegrass seed is 14 pounds in Virginia, Georgia, Mississippi, Arkansas, Tennessee, Michigan, Indiana, Illinois, Iowa, Missouri, Kansas. English bluegrass, 22 pounds in Nebraska, Colorado and Montana, but is not specified in other states. In Delaware sifted corn meal is 44 pounds, and in that state other articles take the United States standard. In Arkansas and Mississippi $33\frac{1}{3}$ pounds, not 33, is the legal unit for cotton seed. In New York, coal, ashes, meal, manure, Indian corn in the ear, fruit, and roots of every kind, the standard is the half-bushel of 1,075.21 cubic inches and its multiples and subdivisions. Hominy is 50 pounds in Massachusetts, 60 pounds in Ohio. Ground peas, 25 pounds in Georgia, 24 pounds in Kentucky. Parsnips, in Connecticut 45 pounds, Wisconsin 44, Montana 50. Rutabagas, 60 pounds in Maine and Connecticut, 56 pounds in Wisconsin. Mangel-wurzels the same, but 50 pounds in Washington. Vegetables, not specified, 50 pounds in Rhode Island and Washington.

STATES	Apples, Dried.	Barley.	Beans, Castor.	Beans, White.	Buckwheat.	Corn, ear.	Corn, Shelled.	Corn Meal.	Malt Barley.	Onions.	Oats.	Potato, Irish.	Potato, Sweet.	Peas.	Rye.	Clover seed.	Cotton seed.	Flaxseed.	Hungarian Grass Seed.	Millet Seed.	Timothy Seed.	Turnip.
Maine.....	48	48	62	62	48	56	50	52	30	60	60	60	60	60	62	60	60	60	60	45	60	
New Hampshire...	48	62	62	62	48	56	50	52	32	60	60	60	60	60	56	60	60	60	60	45	60	
Vermont.....	48	62	62	62	48	56	50	52	32	60	60	60	60	60	56	60	60	60	60	45	60	
Massachusetts.....	48	62	62	62	48	56	50	52	32	60	60	60	60	60	56	60	60	60	60	45	60	
Rhode Island.....	48	62	62	62	48	56	50	52	32	60	60	60	60	60	56	60	60	60	60	45	60	
Connecticut.....	48	62	62	62	48	56	50	52	32	60	60	60	60	60	56	60	60	60	60	45	60	
New York.....	48	62	62	62	48	56	50	52	32	60	60	60	60	60	56	60	60	60	60	44	60	
New Jersey.....	25	48	60	60	50	56	50	57	30	60	60	60	54	60	56	64	55	55	55	45	60	
Pennsylvania.....	47	62	62	62	48	56	50	57	30	60	60	60	60	60	56	62	60	60	60	45	60	
Delaware.....	48	62	62	62	48	56	50	57	30	60	60	60	60	60	56	62	60	60	60	45	60	
Maryland.....	48	62	62	62	48	56	50	57	30	60	60	60	60	60	56	62	60	60	60	45	60	
Virginia.....	28	48	60	60	52	70	56	50	38	57	32	60	56	60	56	60	60	60	60	45	55	
North Carolina.....	48	60	60	60	50	54	46	50	30	60	60	60	60	60	64	30	55	55	55	45	60	
South Carolina.....	28	48	60	60	56	72	56	50	57	32	60	60	60	60	56	60	32	32	32	45	60	
Georgia.....	24	47	60	60	52	70	56	48	57	32	60	60	55	60	56	60	30	56	56	45	55	
Florida.....	26	48	46	60	48	70	56	48	38	57	32	60	55	60	56	60	40	56	50	45	55	
Alabama.....	26	48	46	60	48	70	56	48	57	32	60	60	55	60	56	60	32	56	50	45	55	
Mississippi.....	48	60	60	60	70	56	48	57	32	60	60	60	50	60	56	60	33	56	48	45	60	
Louisiana.....	48	60	60	60	70	56	50	57	32	60	60	60	50	60	56	60	30	56	50	45	60	
Texas.....	28	48	60	60	42	70	56	50	57	32	60	60	55	60	56	60	32	56	48	45	55	
Arkansas.....	24	48	60	60	52	70	56	48	57	32	60	60	50	60	60	60	33	56	50	45	55	
Tennessee.....	24	48	46	60	50	70	56	50	56	32	60	60	50	60	56	60	28	56	48	45	55	
West Virginia.....	25	48	60	60	52	70	56	50	57	32	60	60	60	60	56	60	28	56	48	45	55	
Kentucky.....	24	47	45	60	56	70	56	50	57	32	60	60	55	60	56	60	28	56	48	45	60	
Ohio.....	22	48	60	60	50	68	56	34	50	32	60	60	50	60	56	60	28	56	48	45	60	
Michigan.....	22	48	46	60	48	70	56	50	54	32	60	60	56	60	56	60	28	56	48	45	60	
Indiana.....	25	48	46	60	50	68	56	50	35	48	32	60	55	60	56	60	28	56	48	45	60	
Illinois.....	24	48	46	60	52	70	56	48	38	57	32	60	55	60	56	60	28	56	48	45	60	
Wisconsin.....	28	48	60	60	50	70	56	48	34	57	32	60	55	60	56	60	28	56	48	45	60	
Minnesota.....	28	48	60	60	42	70	56	50	57	32	60	60	55	60	56	60	28	56	48	45	60	
Iowa.....	48	48	46	60	52	70	56	50	57	32	60	60	46	60	56	60	28	56	48	45	60	
Missouri.....	24	48	46	60	32	70	56	50	38	57	32	60	56	60	56	60	33	56	48	45	60	
Kansas.....	24	48	46	60	50	70	56	50	32	57	32	60	50	60	56	60	28	56	48	45	60	
Nebraska.....	24	48	46	60	52	70	56	50	30	57	32	60	50	60	56	60	28	56	48	45	60	
California.....	50	60	60	60	40	70	56	50	57	32	60	60	50	60	56	60	28	56	48	45	60	
Oregon.....	28	46	60	60	42	70	56	50	57	32	60	60	50	60	56	60	28	56	48	45	60	
Colorado.....	48	60	60	60	52	70	56	50	57	32	60	60	50	60	56	60	28	56	48	45	60	
North Dakota.....	48	60	60	60	42	70	56	50	48	52	32	60	46	60	56	60	28	56	48	42	60	
South Dakota.....	48	60	60	60	42	70	56	50	52	32	60	60	46	60	56	60	28	56	48	42	60	
Idaho.....	50	60	60	60	40	70	56	50	57	32	60	60	50	60	56	60	28	56	48	45	60	
Montana.....	48	60	60	60	52	70	56	50	57	32	60	60	50	60	56	60	28	56	48	45	60	
United States.....	48	50	60	60	42	70	56	48	34	32	60	60	60	60	56	60	28	56	48	45	60	

Eleven fat months follow a good start in June.

Number, Weights, Cost and Amount of Grass Seed.

Number of grains in 1 pound of seed of the principal grasses and forage plants, the amount to sow per acre of seed of standard purity, the amount to sow of pure and germinating seed, the weight per bushel, the cost of seed per acre, and the weight of 10,000,000 seeds, which is the standard amount per acre in composing mixtures.

(Columns 1, 2, 3, and 4 are compiled from The Best Forage Plants, by Stebler & Schroeter. The figures in column 5 are obtained by multiplying the amount of standard quality of seed required (column 2) by the retail price per pound quoted in New York catalogues. The weight of 10,000,000 grains (column 6) is obtained by dividing this quantity by the number of seeds in 1 pound (column 1).

Name.	(1) Number of grains in 1 pound of pure seed.	(2) Amount to sow per acre, in pounds, standard quality.	(3) Amount to sow per acre, in pounds, of pure ger- minating seed.	(4) Weight per bushel.	(5) Cost of seed per acre.	(6) Weight of 10,000,000 grains.	Remarks.
Redtop (<i>Acrostis alba</i>)	603,000	9.7	7.00	Pounds. 8.32	\$1.45	Pounds. 16.58	Requires moist climate or damp soil. Best propagated by transplanting small turf cuttings in autumn. Valuable for late pasturage or lawns in the New England and Middle States. Use 5 to 10 per cent in mixtures.
Reed canary grass (<i>Phalaris arundinacea</i>)	660,000	21.0	12.00	44-48	7.35	15.15	Adapted to stiff, wet lands and flooded fields. Requires moisture. Valuable hay when cut young, and well suited for binding loose banks near running water or for forming a firm sod on marshy ground.
Smooth-stalked meadow grass (<i>Poa pratensis</i>)	2,400,000	17.5	8.40	-----	2.10	4.17	Grows best on soils which are strongly calcareous. Well adapted for pasture, and makes a good bottom grass for meadows. An excellent lawn grass.
Rough-stalked meadow grass (<i>Poa trivialis</i>)	23,000,000	19.5	8.75	11-17	4.88	3.33	Should be sown only on moist, fertile, and sheltered soils in mixtures.
Sheep's fescue (<i>Festuca ovina</i>)	680,000	28.0	12.60	10-15	4.20	14.85	Light, dry soils, especially those which are poor, shallow, and silicious. Valuable bottom grass and for sheep pastures. Sown only in mixtures.
Various-leaved fescue (<i>Festuca heterophylla</i>)	400,000	33.5	19.50	-----	\$3.38	25.00	Best on moist, low lands containing humus, and sandy loams. Withstands drought; useful in pasture; unimportant for hay. Alone it makes no continuous turf.
Creeping fescue (<i>Festuca rubra</i>)	600,000	42.5	13.00	10-15	3.50	16.66	Valuable pasture or bottom grass. Withstands drought; endures both cold and shade. On poor land, especially moist sands and railway banks, serves to bind the soil. Product small.
Awnless brome grass (<i>Bromus inermis</i>)	137,000	44.0	35.60	-----	3.80	72.99	Valuable for light soils, especially in regions subject to extremes of heat or long periods of drought. Used alone or in mixtures for permanent meadows and pastures.
Perennial rye grass (<i>Lolium perenne</i>)	330,800	55.0	38.50	18-30	4.95	29.70	Excellent and lasting pasture grass. On light, dry soils disappears after the second year. Rarely sown alone.

Italian rye grass. (<i>Lolium italicum</i>).	285,000	48.5	32.40	12-24	3.56	55.10	Excellent for rich and rather moist lands. Regarded in Europe as one of the best for hay. Lasts only 2 or 3 years.
Orchard grass (<i>Dactylis glomerata</i>).	579,500	35.0	-----	12-16	5.60	17.25	Grows well on any soil, excepting that which is very wet, withstands shade. Affords a great amount of aftermath. Valuable alike for hay and pasture.
Meadow fescue (<i>Festuca pratensis</i>).	318,200	52.0	-----	12-23	7.80	31.42	Thrives in either dry or wet soils. Valuable hay or pasture grass.
Meadow oat grass (<i>Arrhenatherum avenaceum</i>).	159,000	70.0	34.30	10	12.60	62.89	Thrives on moist, loamy sands, or light clays which are not too moist, and marls. Spring most favorable seed time. Valuable in the South for hay or winter pasture.
Yellow oat grass (<i>Trisetum flavescens</i>).	2,045,600	29.0	4.04	5½	24.65	4.89	Valuable for temporary or permanent pastures. Thrives on marly or calcareous soil, in all light land rich in humus.
Velvet grass (<i>Holcus lanatus</i>).	1,304,000	22.0	8.80	6½	4.40	7.66	Sometimes sown on light, thin soils, unsuited for more valuable sorts. Rarely used excepting in mixtures.
Timothy (<i>Phleum pratense</i>).	1,170,500	16.0	14.00	48	1.50	18.54	Best known and most extensively cultivated for hay, sown alone or mixed with redtop or clover. Succeeds best on moist loams or clays.
Meadow foxtail (<i>Alopecurus pratensis</i>).	907,000	23.0	6.21	6	6.21	11.02	On dry ground the yield is light. Endures cold. Likes strong soil, stiff loam or clay. One of the best for land under irrigation. Very early. Two to four pounds in mixtures for permanent pastures.
Vernal grass (<i>Anthoxanthum odoratum</i>).	924,000	30.0	7.80	-----	15.00	10.82	Grows on almost any kind of soil; sown only in mixtures, 1 to 2 pounds with permanent pasture or meadow grasses.
Crested dog's tail (<i>Cynosurus cristatus</i>).	1,127,000	25.0	13.50	20-32	7.50	18.87	Especially adapted for, loams, light clays, marls, and moist, loamy sands. Moist climates are most suitable; withstands drought and thrives well in shade. Nutritive value high. Used in mixtures to form bottom grass either in pasture or hay.
Alsike clover (<i>Trifolium hybridum</i>).	707,000	12.3	9.00	94-100	1.60	14.14	Grows on strongest clay or peaty soil; peculiarly adapted to damp ground. Bears heavy frosts without injury. Sown in August or February.
Sainfoin (<i>Onobrychis sativa</i>).	22,500	78.0	60.84	40	6.25	444.44	Requires good and open subsoil, free from water. Sown alone, from end of March to beginning of May.
Red clover (<i>Trifolium pratense</i>).	279,000	18.0	15.84	64	2.50	35.84	Succeeds best in rich, loamy soil, on good clays, and on soils of an alluvial nature. A standard fodder plant.
White clover (<i>Trifolium repens</i>).	740,000	10.5	7.50	63	2.94	13.51	Thrives on mellow land containing lime, and on all soils rich in humus. Resists drought. Generally used in mixtures for pastures or lawns.
Common kidney vetch (<i>Anthyllis vulneraria</i>).	154,000	17.5	15.00	60-64	4.58	67.15	Cultivated for grazing; on warm soils, if manured and of proper depth. Hardy, resists drought. Sheep, goats, and horned cattle eat it greedily.
Alfalfa, or lucern (<i>Medicago sativa</i>).	209,500	25.0	22.00	61-63	3.25	48.56	Grows well on any calcareous soil having a permeable subsoil. Especially adapted to the warm and dry regions of the West and South-west. Requires irrigation.
Trefoil (<i>Medicago lupulina</i>).	323,000	18.0	14.75	64-66	2.16	30.48	Any soil containing sufficient moisture and lime is suitable. Most successful on clay marls. Cultivated only where the better kinds of clover can not be grown.
Bird's-foot trefoil (<i>Lotus corniculatus</i>).	375,000	11.0	4.67	60	4.40	28.06	Thrives on dry or moist, sandy or clayey soils. Well suited to dry lands at high elevations, though poor.
Official goats' rue (<i>Galega officinalis</i>).	62,000	22.0	6.90	-----	4.14	161.29	Excellent fodder plant for warm, sheltered situations. Thrives only in deep soil, and when subsoil is not wet.

Miscellaneous Fruit Estimates.

From 7 to 12 bushels of apples are required for a barrel of cider.

A bushel of average apples gives from 6 to 7 pounds of evaporated product.

Product of dried raspberries (W. J. Green):

Ohio,	9 lbs. to the bushel	Ada,	8½ lbs. to the bushel
Gregg,	8½ " " "	Tyler,	8½ " " "
Hilborn,	8½ " " "	Shaffer,	8 " " "

Raspberries contain from 1½ to 3 lbs. of seed to the bushel.

A pint of garden blackberries weighs about one pound.

Good clusters of American grapes weigh on an average from one-half to three-fourths of a pound, while extra good clusters will reach a pound and a half. Clusters have been reported which weighed two pounds.

A bushel of sweet corn ears, "in the milk," with the husks which come from it, weighs from 50 to 70 lbs.

There are about 5,000 honey bees in a pound.

Fruit and Vegetable Canning Census.

From the Census of 1890.

Capital employed.....	\$15,315,185	Cost of materials used.....	\$18,665,163
Average number of employes.....	50,881	Total value of products.....	\$29,862,416
Wages paid during the year.....	\$5,243,707		

The capital employed in this industry was only \$701,388 less than was employed in the creamery and cheese-factory business, while the value of the products exceeded the combined value of all the windmills, clocks, watches, firearms, mirrors, mats and matting, linen fabrics and enameled goods manufactured in the United States during the same year.

Vitality of Seeds.

Vegetables.	Yrs. Vegetables.	Yrs. Vegetables.	Yrs. Vegetables.	Yrs.			
Artichoke,	5 to 6	Carrots,	2 to 3	Melon,	8 to 10	Parsnip,	2 to 4
Asparagus,	2 " 3	Celery,	2 " 3	Mustard,	3 " 4	Pepper,	2 " 3
Beans,	2 " 3	Corn (on cob),	2 " 3	Okra,	3 " 4	Rhubarb,	3 " 4
Beets,	3 " 4	Endive,	5 " 6	Onion,	2 " 3	Squash,	8 " 13
Broccoli,	5 " 6	Egg plant,	1 " 2	Pea,	5 " 6	Spinach,	3 " 4
Cucumber,	8 " 10	Leek,	2 " 3	Pumpkin,	8 " 10	Turnip,	3 " 6
Cauliflower,	5 " 6	Lettuce,	3 " 4	Parsley,	2 " 3	Tomato,	2 " 3
Cress,	3 " 4						

Standards of Germination of Garden Seeds

Required by the Department of Agriculture.

In the following table the first column of figures indicates the present (1898) germination standards adopted by the Department of Agriculture for some of the more common garden seeds, including the allowance of 5 per cent for variation in tests. The second column is taken for comparison from a work on market gardening, written by a prominent American seedsman, all of the figures being based on first year seed, grown and harvested under favorable conditions.

SEED.	STANDARDS.		SEED.	STANDARDS.	
	Department	Seedsman.		Department	Seedsman.
Cabbage.....	90-95	80-95	Okra.....	80-85	70
Cauliflower.....	80-85	80-95	Beet.....	142.5-150	300†
Turnip.....	90-95	80-90	Onion.....	80-85	70-90 ‡
Carrot.....	80-85	70-80	Leek.....	80-85	70-90 ‡
Parsley.....	70-75	70-80	Radish.....	90-95	90-95 ‡
Spinach.....	84-89	70-80	Lettuce.....	85-90	80
Parsnip.....	70-75	70-80	Celery.....	60-65	80
Cucumber.....	87-92	80-90	Tomato.....	85-90	80
Cantaloupe.....	87-92	80-90	Peas.....	93-98	95
Squash.....	87-92	80-90	Beans.....	90-95	90-95
Pumpkin.....	87-92	80-90	Corn (flint).....	87.5-92.5	90
Watermelon.....	87-92	80-90	Corn (sugar).....	87.5-92.5	Less than flint.
Pepper.....	80-85	70			
Egg plant.....	80-85	70			

† Often, if "containing three to five germs per capsule." ‡ American grown.

A good cook is better than a doctor, and a garden is better than a drug store.

Seed Purity and Germination.

The following standards of purity and germination in seeds are recommended by the U. S. Department of Agriculture. The term purity, the percentage of which is reckoned by weight, denotes freedom from foreign matter, such as chaff, dirt, or seeds of other plants, but it has no reference to the genuineness of the variety, which is called by seedsmen purity of stock. The percentage of germination is reckoned by count from a sample freed from foreign matter, a seed being considered as having germinated when the rootlet, or radicle, has pushed through the seed coat. It is not to be understood from these standards that the real value of a quantity of seed is dependent wholly upon the number of pure germinable seeds it contains. The ancestry of the seed and its trueness to type are factors of primary importance in determining seed value, especially in the case of vegetables. These points, however, are very difficult, if not impossible, to determine at the time of purchase, while the purity and germination are easily ascertained and are very essential points. The germination standards are based upon tests conducted between moist blotters in a germinating chamber. Such tests usually give a little higher result than those made in soil. In the case, however, of blue grass, lettuce, tobacco, and the parsley family, soil tests are generally higher than blotter tests. While the figures given are only tentative and subject to change, it should be stated that they are the result of all the information available at the present time, including nearly ten thousand germination tests conducted in the seed laboratory of the Department of Agriculture.

Per cent of purity and germination of seeds.

SEED.	Purity.	Germinati'n	SEED.	Purity.	Germinati'n
	Per cent.	Per cent.		Per cent.	Per cent.
Alfalfa.....	98	85-90	Melon, musk.....	99	85-90
Asparagus.....	99	80-85	Melon, water.....	99	85-90
Barley.....	99	90-95	Millet, common (<i>Setaria italica</i>).....	99	85-90
Beans.....	99	90-95	Millet, hog (<i>Panicum miliaceum</i>).....	99	85-90
Beet.....	99	* 150	Millet, pearl.....	99	85-90
Blue grass, Canadian	90	45-50	Mustard.....	99	90-95
Blue grass, Ky.....	90	45-50	Oats.....	99	90-95
Brome, awnless.....	90	75-80	Okra.....	99	80-85
Buckwheat.....	99	90-95	Onion.....	99	80-85
Cabbage.....	99	90-95	Parsley.....	99	70-75
Carrot.....	95	80-85	Parsnip.....	95	70-75
Cauliflower.....	99	80-85	Peas.....	99	93-98
Celery.....	98	60-65	Pumpkin.....	99	85-90
Clover, alsike.....	95	75-80	Radish.....	99	90-95
Clover, crimson.....	98	85-90	Rape.....	99	90-95
Clover, red.....	98	85-90	Rye.....	99	90-95
Clover, white.....	95	75-80	Salsify.....	98	75-80
Collards.....	99	90-95	Sorghum.....	98	85-90
Corn, field.....	99	90-95	Spinach.....	99	80-85
Corn, sweet.....	99	85-90	Spurry.....	99	85-90
Cotton.....	99	85-90	Squash.....	99	85-90
Cowpea.....	99	85-90	Timothy.....	98	85-90
Cress.....	99	85-90	Tomato.....	98	85-90
Cucumber.....	99	85-90	Turnip.....	99	90-95
Eggplant.....	99	75-80	Tobacco.....	98	75-80
Fescue, meadow....	95	85-90	Wheat.....	99	90-95
Lettuce.....	99	85-90			
Kaffir corn.....	98	85-90			

* Each beet fruit, or "ball," is likely to contain from two to seven seeds. One hundred balls should yield at least 150 sprouts.

Barnyard Manure.

The fertilizing value of manure from the various farm animals is in the order as given in the table. The figures include both solids and liquids. Based on I. P. Roberts's results at Cornell.

	Per 100 lbs. live weight of stock.			Value dollars per ton.	Per cent nitrogen.	Per cent potash.	Per cent phos. acid.
	Lbs. per day.	Value cts. per day.	Val. dols. per year.				
Sheep,	31.1	7.2	\$26.09	\$3.30	1.25	1.20	.85
Pigs,	83.6	16.7	60.88	3.29	1.01	.48	.24
Horses,	48.8	7.6	27.74	2.21	1.	.92	.17
Cows,	74.1	8	29.27	2.02	.43	.24	.17

Table of Noxious Weeds.

Condensed from Table of One Hundred Weeds, published by U. S. Department of Agriculture. By alternate cultivation and smothering crops is meant clean cultivation during the dry season and a heavy seeding of some annual crop, as crimson clover, cow peas, millet or oats, that will cover the ground thickly and choke down the weeds during the growing season.

Common names.	Where injurious.	Time of seeding.	Methods of Propagation and distribution of seed.	Place of growth and products injured.	Methods of Eradication.
Barn grass, bu'yd grass, c'ksf't* Black mustard.* Buffalo bur, beaked horse nettle.* Bull thistle, common thistle.† Burdock, great dock.† Bur grass, hedgehog grass, sand bur.*	Minn. to Mont. Wash. to Cal. Ia. to Col. Me. to Mo. Me. to Wis. Everywhere.	July to Sept. July to Oct. July to Nov. July to Nov. Aug. to Oct. July to Nov.	Seeds; in grain seed Seeds; grass grain. Seeds; tumbleweed Seeds; wind. Seeds; animals. Seeds; animals.	Fields; spring wheat. Fields; grain crops. Grain; hoed crops. Mead'ws, win'r whe't Waste; past.; wool. Sandy pastures; wool	Prevention of seeding Prevent'n; hoed cr'ps Heavy seed.; close cul Prev. seed.; cut. in fall Prevention; grubbing Cultivation; burning.
Buttonweed, poorweed.* Canada thistle, cursed thistle.† Charlock, wild mustard.*	Md. to Ala. Me. to Mich. and Ore. Me. to N. J.	July to Nov. July to Oct. June to Oct.	Seeds. Seeds; wind; root- stocks. Seeds; in grain.	Hoed crops; grain. Fields; grain; mead- ows. Fields; grain.	Prevent'n; cult. Alternate cultivation, and heavy cropping. Prev; cult; hoed crops
Chess, cheat.* Clover dodder, devil's gut, dodder.* Cockle, corn cockle, rose cam- pion.* Cocklebur clot bur, ditch bur, small burdock.* Couch grass, quack grass, witch grass, quick grass.† Curled dock, yellow dock.† Horse nettle, bull nettle, sand briar.†	Me. to Wash. N. Y. to N. C. and westward. Me. to Wash. Everywhere. Me. to Minn. Me. to Wash. Ia. to N. J. and South.	Aug. to Oct. June to Nov. July to Sept. Aug. to Nov. Aug. to Sept. July to Oct. Aug. to Nov.	Seeds; in grain seed Seeds, in clover and alfalfa seed. Seeds; in grain seed. Seeds; animals. Rootstocks. Seeds. Seeds; rootstocks.	Fields; grain. Clover; alfalfa. Grain fields; wheat. Waste places; pas- tures; wool. Fields; all crops ex- cept hay. Meadows; grain cr'ps Waste land; mead- ows; pastures. Waste land; mead- ows; grain fields.	Clean seed. Clean seed; rotation of crops. Clean seed. Prevent'n of seeding; cultivation. Alternate cultiv. and heavy cropping. " " Prev. of seeding; late cultivation. Prev. of seed.; culti.; heavy cropping. Sowing clean seed; cultivation. Alternate cultiva. and smothering crops.
Horseweed, butterweed, colt's tail, fleabane.* Milkweed, cottonweed, silk- weed.† Narrow-leaved stick-seed, beg- gar tick.* Nut sedge, nut grass, coco, coco sedge.†	Everywhere. N. Y. to Neb. Everywhere. Va. to Tex.	July to Oct. Aug. to Sept. July to Oct. Aug. to Nov.	Seeds; wind. Seeds; wind root- stocks. Seeds; animals. Tubers; in nursery packing; seeds.	Fields. Everywhere; all cr'ps In hoed crops.	

* Annual; † Biennial; ‡ Perennial.

Table of Noxious Weeds.—Continued.

Common names.	Where injurious.	Time of seeding.	Methods of Propagation and distribution of seed.	Place of growth and products injured.	Methods of Eradication.
Orange hawkweed, ladies' paint brush, red daisy.†	N. Y.	Aug. to Oct.	Seeds; wind root-stocks.	Meadows; pastures.	Prevent'n of seeding; cultivation.
Ox-eye daisy, bull's eye, white daisy, whiteweed.†	Me. to Va. and O.	July to Oct.	Seeds; rootstocks.	Meadows; pastures.	Burning; thorough cultivation.
Pigeon grass, foxtail, yellow foxtail.*	Everywhere.	July to Nov.	Seeds; in clover seed.	Cultivated land; grain crops.	Prevent'n of seeding; thorough cultivation.
Pigweed, careless weed, rough amaranth.*	Everywhere.	Aug. to Nov.	Seeds.	Cultivated land; all crops.	Prevent'n of seeding; burning.
Prickly lettuce, compass plant, milkweed, wild lettuce.*	Ohio to Ia. and Utah to Ore.	July to Nov.	Seeds; wind.	Everywhere; all cr'ps	Closer cultivation.
Purslane, garden purslane, parsley, pusley.*	Everywhere.	June to Dec.	Seeds.	Cultivated land; garden crops.	Prevent'n of seeding; burning.
Ragweed, bitterweed, hogweed, richweed, Roman wormwood.*	Everywhere.	Aug. to Nov.	Seeds; wind.	Everywhere; all cr'ps	Cultivation; burning.
Russian thistle, Russian tumbleweed.*	Minn. to Colo.	Aug. to Nov.	Seeds; wind.	Everywhere; s. gr'in	Cultivation.
Shepherd's purse, pick purse, toothwort.*	Everywhere.	May to Dec.	Seeds.	Everywhere; all cr'ps	Prev. of seeding; cul.
Smartweed, knotweed.*	Ohio to Neb.	Aug. to Sept.	Seed; in clover seed; rootstocks.	Meadows; pastures.	Cult.; smothering crop.
Sorrel, field sorrel, horse sorrel, sourweed.†	Nearly everywhere.	June to Nov.	Seeds.	Cultivated land.	Prevent'n of seeding; Sowing clean seed; cultivation.
Sunflower, common sunflower.*	Neb. to La.	Aug. to Oct.	Seeds; in grain seed	Grain and corn fields.	Prevent'n of seeding; cultiv. in hoed crops
Wild buckwheat, black bindweed.*	Mich. to N. D.	July to Oct.	Seeds.	Grain fields.	Clean seed; burning; past.
Wild mustard, charlock, yellow mustard.*	Me. to Ore.	July to Oct.	Seeds.	Oat fields.	Alternate cultivation, and heavy cropping.
Wild oats.*	Minn. to Cal.	July to Sept.	Seeds; in seed oats.	Everywhere; dairy products; grain.	
Wild onion, field garlic, wild garlic.†	Penn. to S. C.	Aug. to Sept.	Bulblets; seeds.		

* Annual; † Biennial. ‡ Perennial.

Weeds in Walks.

The foot paths about the farms are very apt to be covered by grass and other weeds. The graveled walks in the garden and around the house are deformed in the same way. An easy way to prevent this is to get a barrel of the cheapest salt, say a sack of it, at the price of one dollar, or less, and scatter it over the weeds after a shower, or when the dew is on the ground. It will kill the weeds, and if the walk be graveled or made of crushed stone, it will brighten it exceedingly.

Contents and Weight of Manure Heaps.

Multiply the mean area by the mean depth, the quotient will be solid contents in cubic yards.

NOTE. The mean area of a heap is found by adding to half the area of the base half the area of the top. The mean depth is the average of various depths; this being found by dividing the sum of the several depths by the number.

Manure heaps weigh from 1500 to 2300 lbs. per cubic yard. A workman filling carts with a fork may be expected to move 18 to 22 tons per day. Three tons of manure to a cord is a common estimate, but weight varies greatly according to kind and compactness.

Value and Care of Barnyard Manure.

On the basis of the prices charged for commercial fertilizers, the fertilizing value of the manure produced by the farm animals of the United States last year was upward of \$2,000,000,000. The average of each horse is estimated at \$27, for each head of cattle \$19, for each hog \$12, and for each sheep \$2.

Amount and Value of Manure Produced by Different Farm Animals.
[New York Cornell Experiment station.]

ANIMAL.	Per 1,000 pounds of live weight.			Value of manure per ton.
	Amount per day.	* Value per day.	* Value per year.	
	Pounds.	Cents.		
Sheep.....	34.1	7.2	\$26.09	\$3.30
Calves.....	67.8	6.2	24.45	2.18
Pigs.....	83.6	16.7	60.88	3.29
Cows.....	74.1	8.0	29.27	2.02
Horses.....	48.8	7.6	27.74	2.21

* Valuing nitrogen at 15 cents, phosphoric acid at 6 cents, and potash at 4½ cents per pound.

The deterioration of manure results from two chief causes: (1) fermentation and (2), weathering or leaching. The loss from destructive fermentation may be almost entirely prevented by the use of proper absorbents and preservatives, such as superphosphate and kainite, and especially by keeping the manure moist and excluding the air.

Amounts of Different Preservatives to be Used per Head Daily.

PRESERVATIVE.	Per horse, 1,000 pounds weight.		Per cow, 880 pounds weight.		Per pig, 220 pounds weight.	Per sheep, 110 pounds weight.
	Lbs.	Oz.	Lbs.	Oz.	Ounces.	Ounces.
Superphosphate.....	1	0	1	2	3	2 1-2
Gypsum.....	1	9	1	12	4 3-5	3 3-5
Kainite.....	1	2	1	5	4	3 1-5

Grain Estimates.

A wagon box ten feet long, three feet wide and twenty-five inches deep will hold 27.8 bushels of ear corn, or 50.2 bushels of shelled corn. A crib ten feet wide, ten feet high and sixteen feet long will hold 711 bushels of ear corn. Of ear corn one bushel is contained in two and a quarter cubic feet. In figuring shelled corn and grain, the same space will hold one and four-fifths times as much grain as it will of ear corn. A crib that will hold 800 bushels of ear corn will hold of shell corn or other grain 1440 bushels.

A paying combination—good land, good stock and a good head.

Conversion Table for Calculating Fertilizing Ingredients.—(Aitken.)

Amount of	Multiplied by	Gives corresponding amount of
Nitrogen,	1.214	Ammonia.
"	6.25	Albuminoid mat.(protein)
Ammonia,	.824	Nitrogen.
"	3.882	Sulphate of ammonia.
"	3.147	Chloride of ammonia.
"	3.706	Nitric acid.
"	5.0	Nitrate of soda.
Potash (anhydrous),	1.85	Sulphate of potash.
"	1.585	Muriate of potash.
Phosphoric acid (anhydrous),	2.183	Tri-calcic phosphate.
"	1.915	Bi-calcic phosphate.
"	1.648	Soluble calcic phosphate.
Mono-calcic phosphate,	1.325	Tri-calcic phosphate.
Bi-calcic phosphate,	1.566	" " "
Lime (calcium oxide),	1.845	" " "
"	1.786	Carbonate of lime.
Chlorine,	1.648	Sodium chloride.

Table of Wages.

VALUE OF TIME—FOR DAYS, AT STATED RATES PER MONTH.

RATE.	\$14	\$15	\$16	\$17	\$18	\$19	\$20	\$21	\$22	\$23	\$24	\$25
Days.												
1.....	.54	.58	.62	.65	.69	.73	.77	.81	.85	.88	.92	.96
2.....	1.08	1.15	1.23	1.31	1.38	1.46	1.54	1.62	1.69	1.77	1.85	1.92
3.....	1.62	1.73	1.85	1.96	2.08	2.19	2.31	2.42	2.54	2.65	2.77	2.88
4.....	2.15	2.31	2.46	2.62	2.77	2.92	3.08	3.23	3.38	3.54	3.69	3.85
5.....	2.69	2.88	3.08	3.27	3.46	3.65	3.85	4.04	4.23	4.42	4.62	4.81
6.....	3.23	3.46	3.69	3.92	4.15	4.38	4.62	4.85	5.08	5.31	5.54	5.77
7.....	3.77	4.04	4.31	4.58	4.85	5.12	5.38	5.65	5.92	6.19	6.46	6.73
8.....	4.31	4.62	4.92	5.23	5.54	5.85	6.15	6.46	6.77	7.08	7.38	7.69
9.....	4.85	5.19	5.54	5.88	6.23	6.58	6.92	7.27	7.62	7.96	8.31	8.65
10.....	5.38	5.77	6.15	6.54	6.92	7.31	7.69	8.08	8.46	8.85	9.23	9.62
11.....	5.92	6.35	6.77	7.19	7.62	8.04	8.46	8.88	9.31	9.73	10.15	10.58
12.....	6.46	6.92	7.38	7.85	8.31	8.77	9.23	9.69	10.15	10.62	11.08	11.54
13.....	7.00	7.50	8.00	8.50	9.00	9.50	10.00	10.50	11.00	11.50	12.00	12.50
14.....	7.54	8.08	8.62	9.15	9.69	10.23	10.77	11.31	11.85	12.38	12.92	13.46
15.....	8.08	8.65	9.23	9.81	10.38	10.96	11.54	12.12	12.69	13.27	13.85	14.42
16.....	8.62	9.23	9.85	10.46	11.08	11.69	12.31	12.92	13.54	14.15	14.77	15.38
17.....	9.15	9.81	10.46	11.12	11.77	12.42	13.08	13.73	14.38	15.04	15.69	16.35
18.....	9.66	10.38	11.08	11.77	12.46	13.15	13.85	14.54	15.23	15.92	16.62	17.31
19.....	10.23	10.96	11.69	12.46	13.15	13.88	14.62	15.35	16.08	16.81	17.54	18.27
20.....	10.77	11.54	12.31	13.08	13.85	14.62	15.38	16.15	16.92	17.69	18.46	19.23
21.....	11.31	12.12	12.92	13.73	14.54	15.35	16.15	16.96	17.77	18.58	19.38	20.19
22.....	11.85	12.69	13.54	14.38	15.23	16.08	16.92	17.77	18.62	19.46	20.31	21.15
23.....	12.38	13.27	14.15	15.04	15.92	16.81	17.69	18.58	19.46	20.35	21.23	22.12
24.....	12.92	13.85	14.77	15.69	16.62	17.54	18.46	19.38	20.31	21.23	22.15	23.08
25.....	13.46	14.42	15.38	16.35	17.31	18.27	19.23	20.19	21.15	22.12	23.08	24.04
26.....	14.00	15.00	16.00	17.00	18.00	19.00	20.00	21.00	22.00	23.00	24.00	25.00

To Estimate the Weight of a Load.

Find the capacity of the wagon in cubic feet by multiplying together the three inside measurements of the wagon box, and multiply the result by the weight of a cubic foot of the substance. Thus, if a wagon box is 8 feet long, 4 feet wide and 2 1-2 feet high, it will hold 80 cubic feet and when filled even full with clay, which weighs about 135 pounds per cubic foot, the weight of the load would be 20,800 lbs. The weight of common soil varies from 95 to 124 lbs. per cubic foot, according to nature and compactness. Water weighs 62.5 lbs.; cast iron, 450 lbs, seasoned, 30 lbs.; seasoned oak, 52 lbs. Earth with stones is heavier than clear soil. A cubic foot of marble weighs 166 lbs.; of granite, 169 lbs.; of brick, 125 lbs. None of these weights is exact, because of the varied conditions under which the materials exist.

When you feel blue, go to work.

A Rat-Proof Corncrib.

To make corncribs rat proof, take posts 10 or 11 feet long and eight inches square, mortise two feet from one end; for end sills, 2-inch mortise with tusk. Taper post from sill to the end, by hewing off inside until the end is reduced to four inches diameter; make smooth with the draw-knife, and nail on tin smooth half way to the end, below the sill. Let sills be eight inches square, also end-tie them and the rafter-plates strong with moderate inter-ties. Brace well, and lath up and down with $\frac{3}{4}$ inch lath; dove-tail or counter-sink joints crosswise; lay the floor, and board up the ends with un-grooved boards; let each bend be twelve feet long, six feet wide at the sill, and $7\frac{1}{2}$ feet at plate; and, if full to peak, it will hold 250 bushels. If preferred, lay the floor with lath or narrow boards, with room for ventilation. Each post should stand on stone, and be about three inches from the ground, and each stone have a foundation 2 feet square and below the frost.

To find the bushels of shelled corn in a crib or bin of corn in the ear, divide the cubic contents by 2.

To find the number of bushels of potatoes, apples, etc., in a bin, multiply the cubic contents by 8 and point off one figure in the product.

Number of Shrubs or Plants for an Acre of Ground.

Distance apart.	No. of plants.	Distance apart.	No. of plants.
3 inches by 3 inches,	696,960	6 feet by 6 feet,	1,210
4 " " 4 "	392,040	6 $\frac{1}{2}$ " " 6 $\frac{1}{2}$ "	1,031
6 " " 6 "	174,240	7 " " 7 "	881
9 " " 9 "	77,440	8 " " 8 "	680
1 foot by 1 foot,	43,560	9 " " 9 "	537
1 $\frac{1}{2}$ feet by 1 $\frac{1}{2}$ feet,	19,360	10 " " 10 "	435
2 " " 2 feet,	21,780	11 " " 11 "	360
2 " " 2 feet,	10,890	12 " " 12 "	302
2 $\frac{1}{2}$ " " 2 $\frac{1}{2}$ "	6,960	13 " " 13 "	257
3 " " 3 feet,	14,520	14 " " 14 "	222
3 " " 3 feet,	7,260	15 " " 15 "	193
3 " " 3 "	4,840	16 " " 16 "	170
3 $\frac{1}{2}$ " " 3 $\frac{1}{2}$ "	3,555	16 $\frac{1}{2}$ " " 16 $\frac{1}{2}$ "	160
4 " " 4 feet,	10,890	17 " " 17 "	150
4 " " 4 feet,	5,445	18 " " 18 "	134
4 " " 4 "	3,630	19 " " 19 "	120
4 " " 4 "	2,722	20 " " 20 "	108
4 $\frac{1}{2}$ " " 4 $\frac{1}{2}$ "	2,151	25 " " 25 "	69
5 " " 5 feet,	8,712	30 " " 30 "	48
5 " " 5 feet,	4,356	33 " " 33 "	40
5 " " 5 "	2,904	40 " " 40 "	27
5 " " 5 "	2,178	50 " " 50 "	17
5 " " 5 "	1,742	60 " " 60 "	12
5 $\frac{1}{2}$ " " 5 $\frac{1}{2}$ "	1,417	66 " " 66 "	10

Weight of Concentrated Feeding Stuffs.

	Hlf bu.	One qt. wghs.
Wheat, whole,	30	1 lb 14 oz. = 1.88 lb.
Cracked corn,	28	1 lb 12 oz. = 1.75 lb.
Gluten meal,	26	1 lb 8 oz. = 1.50 lb.
Cotton-seed meal,	25 $\frac{1}{2}$	1 lb 9 oz. = 1.56 lb.
Corn meal,	23 $\frac{3}{2}$	1 lb 7 oz. = 1.43 lb.
Corn & cob meal,	22	1 lb 6 oz. = 1.38 lb.
Wheat middl'gs,	18	1 lb 2 oz. = 1.13 lb.
Oats, whole,	16	1 lb 0 oz. = 1.00 lb.
Ground oats,	12	12 oz. = .75 lb.
Wheat bran,	10	10 oz. = .63 lb.

Crops for Cold Frames (Maule).

Sow the seed and thin the plants as indicated.

Vegetable.	Rows apt. in inches.	Plants cleaned inches apart.
Spinach	8-9	2
Beets	7	3
Carrots	6	2
Radishes	4	2
Soup Celery	6	
Parsley	6	

Good luck shuns a lazy farmer.

FROM SEED TIME TO HARVEST.

45

Weight of Ensilage (King).

Table showing the computed weight of well-matured corn silage at different distances below the surface, and the computed mean weight for silos of different depths, two days after filling.

Depth of silage.	Wght.at different depths.	Av. wght. silage per cubic foot.	Depth of silage.	Wght.at different depths.	Av. wght. silage per cubic foot.	Depth of silage.	Wght.at different depths.	Av. wght. silage per cu. foot.
1	18.7	18.7	13	37.3	28.3	25	51.7	36.5
2	20.4	19.6	14	38.7	29.1	26	52.7	37.2
3	22.1	20.6	15	40.0	29.8	27	53.6	37.8
4	23.7	21.2	16	41.3	30.5	28	54.6	38.4
5	25.4	22.1	17	42.6	31.2	29	55.5	39.0
6	27.0	22.9	18	43.8	31.9	30	56.4	39.6
7	28.5	23.8	19	45.0	32.6	31	57.2	40.1
8	30.1	24.5	20	46.2	33.3	32	58.0	40.7
9	31.6	25.3	21	47.4	33.9	33	58.8	41.2
10	33.1	26.1	22	48.5	34.6	34	59.6	41.8
11	34.5	26.8	23	49.6	35.3	35	60.3	42.3
12	35.9	27.6	24	50.6	35.9	36	61.0	42.8

Capacity of Silos.—(King.)

Table giving the approximate capacity of cylindrical silos for well-manured corn silage, in tons.

Depth feet.	Inside diameter in feet.											
	15	16	17	18	19	20	21	22	23	24	25	26
20	58.84	66.95	75.58	84.74	94.41	104.6	115.3	126.6	138.3	150.6	163.4	176.8
21	62.90	71.56	80.79	90.57	100.9	111.8	123.3	135.3	147.9	161.0	174.7	189.0
22	67.35	76.52	86.38	96.84	107.9	119.6	131.8	144.1	158.1	172.2	186.8	202.1
23	71.73	81.61	92.14	103.3	115.1	127.5	140.6	154.3	168.7	183.6	199.3	215.5
24	76.12	86.61	97.78	109.6	122.1	135.3	149.2	163.7	179.0	194.9	211.5	228.7
25	80.62	89.64	103.6	116.1	129.3	143.3	158.0	173.4	189.5	206.4	223.9	242.2
26	85.45	97.23	109.8	123.0	137.1	151.9	167.5	183.8	200.9	218.8	237.4	256.7
27	90.17	102.6	115.8	129.8	144.7	160.3	176.7	194.0	212.0	230.8	250.5	270.9
28	94.99	108.1	122.0	136.8	152.4	168.9	186.2	204.3	223.3	243.2	263.9	285.4
29	99.92	113.7	128.3	143.9	160.3	177.6	195.8	214.9	234.9	255.8	277.6	300.2
30	105.0	119.4	134.8	151.1	168.4	186.6	205.7	225.8	246.8	268.7	291.6	315.3
31	109.8	124.9	141.1	158.2	176.2	195.2	215.3	236.3	258.2	287.8	305.1	330.0
32	115.1	135.9	147.8	165.7	184.6	204.6	225.5	247.5	270.5	294.6	319.6	345.7

In this table the horizontal lines give the number of tons held by a silo, having the depth given at the top of the column.

II.

Table giving the inside dimensions of silos which will allow corn silage to be fed down at the mean rate of 1.6 inches per day, allowing 35 lbs. of silage daily, per cow, for 258 days; the depth of the silo being 34 feet.

For 20 cows, diameter of silo,	Round, feet.	Square, feet.
" 30 " " " "	12.75	11.5
" 40 " " " "	15.6	13.8
" 50 " " " "	18.	16.
" 60 " " " "	20.1	17.9
" 70 " " " "	22.	19.5
" 80 " " " "	23.9	21.1
" 90 " " " "	25.5	22.5
" 100 " " " "	27.	23.9
" 110 " " " "	28.5	25.25

Most men need more brains rather than more luck.

Estimates for Silos.

Table giving inside dimensions of silos, which will allow the silage to be fed down at a mean rate of 2 or 3 inches daily, assuming 40 lbs. of silage at time of filling to be fed each cow daily. Capacity of each silo sufficient for 180 days.

No. of Cows.	Silo 30 feet deep, without partition.					Silo 24 feet deep, with partition.				
	Contents.		Round diam'r in ft.	Square sides in feet.	Mean depth fed d'ly, inches.	Contents.		Round diam'r in ft.	Square sides in feet.	Mean depth fed d'ly, inches.
	Tons.	Cu. ft.				Tons.	Cu. ft.			
30	108	4,091	15	12x14	2	108	5,510	17	16x16	3.2
40	144	6,545	16.75	14x16	2	144	7,347	20	18x18	3.2
50	180	8,182	18.75	16x18	2	180	9,184	22	20x20	3.2
60	216	9,818	20.5	18x18	2	216	11,020	24	22x22	3.2
70	252	11,454	22	20x20	2	252	12,857	26	22x26	3.2
80	288	13,091	23.5	20x22	2	288	14,691	28	24x26	3.2
90	324	14,727	25	22x24	2	324	16,531	29.75	26x28	3.2
100	360	16,364	26.5	24x24	2	360	18,367	31.25	28x28	3.2

Weight and Bulk of Cattle Food.

(Alvord.)

Some of the articles named are quite variable in weight, wheat bran especially, and weighing is always the safer way. No cow house is properly equipped without its scales for weighing feed stuffs and milk, and its book, paper, or slate, with pencil for making notes and records in connection with the feeding, the milk product, and all facts of interest and desirable for preservation.

Food stuff.	Half bushel weighs—	One quart weighs—
	Pounds.	Lbs. Oz.
Wheat, whole,	30	1 14
Cracked corn,	28	1 12
Gluten meal,	26	1 8
Cottonseed meal,	25½	1 9
Corn meal,	23½	1 7
Corn-and-cob meal,	22	1 6
Wheat middlings,	18	1 2
Oats, whole,	16	1 0
Ground oats,	12	0 12
Wheat bran,	10	0 10

Legal Standards for Milk (Wing).

The following states and territories, viz., Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Idaho, Illinois, Kansas, Kentucky, Louisiana, Maryland, Mississippi, Missouri, Montana, Nebraska, Nevada, New Mexico, North Carolina, North Dakota, Oklahoma, South Dakota, Tennessee, Texas, Virginia, West Virginia and Wyoming, have established no legal standard.

The Dominion of Canada, Indiana and Utah have general laws prohibiting dilution or skimming.

In the other states the percentage standards are as follows:

The New York agricultural law, Article 11, defines "adulterated milk" as follows:

1. Milk containing more than eighty-eight per centum of water or fluids.
2. Milk containing less than twelve per centum of milk solids.
3. Milk containing less than three per centum of fats.
4. Milk drawn from cows within fifteen days before and five days after parturition.
5. Milk drawn from animals fed on distillery waste or any substance in a state of fermentation or putrefaction or on any unhealthy food.
6. Milk drawn from cows kept in a crowded or unhealthy condition.
7. Milk from which any part of the cream has been removed.
8. Milk which has been diluted with water or any other fluid, or to which has been added or into which has been introduced any foreign substance whatever.

The best investment for a farmer is in the farm.

Results of Tests of Dairy Breeds.

(Woll's Agricultural Calendar.)

Conducted by American Agricultural Experiment Station.

Breed.	No. of cows included.	No. of lactation periods.	Average yields per lactation period.		Average per cent. fat.	Average cost of		
			Milk lbs.	Fat lbs.		Food eaten per day, cents.	Producing 100 lbs. Milk cents.	Producing 1 lb. Fat, cents.
N. Y. (GENEVA)								
Jersey.....	4	11	5045	282.1	5.60	12.4	90	16.1
Guernsey.....	4	6	5385	285.5	5.30	12.5	86	16.1
Holstein.....	4	4	7918	266.1	3.36	13.9	65	19.1
Ayrshire.....	4	12	6824	244.8	3.60	13.5	74	20.2
Shorthorn.....	1	2	6055	269.0	4.44	12.7	78	17.2
Devon.....	3	5	3984	183.3	4.60	10.3	94	20.5
Am. Hold'ness	2	4	5721	213.1	3.73	12.2	76	20.1
MAINE:								
Jersey.....	2	4	5460	297.0	5.50	16.2	113.0	20.4
Holstein.....	2	3	8369	285.0	3.47	19.5	83.1	24.3
Ayrshire.....	2	4	6612	233.0	3.67	17.0	94.9	26.8
NEW JERSEY:								
Jersey.....	3	3	7695	376.3	4.89	16.1	87.1	17.9
Guernsey.....	4	4	7446	379.0	5.09	14.9	78.1	15.3
Holstein.....	3	3	8455	300.2	3.55	19.3	79.3	22.4
Ayrshire.....	4	4	7461	275.3	3.69	15.0	76.0	20.6
Shorthorn.....	3	3	10457	396.3	3.79	15.4	79.2	20.6

AVERAGE FOR ALL BREEDS AND LACTATION PERIODS.

Jersey.....	9	18	5579	301.1	5.40	13.9	94.7	17.4
Guernsey.....	8	10	6210	322.9	5.20	13.5	82.8	15.8
Holstein.....	9	10	8215	282.0	3.43	17.2	74.7	21.5
Ayrshire.....	10	20	6909	248.5	3.60	14.5	78.5	21.5
Shorthorn.....	4	5	8696	345.4	3.97	14.3	78.7	19.4
Devon.....	3	5	3984	183.3	4.60	10.3	94.0	20.5
Am. Hold'ness	2	4	5721	213.1	3.73	11.2	76.0	20.1
Total.....	45	72						

Strength of Ice of Different Thickness.

Two inches thick—Will support a man.

Four inches thick—Will support a man on horseback.

Five inches thick—Will support an eighty-pounder cannon.

Eight inches thick—Will support a battery of artillery, with carriages and horses.

Ten inches thick—Will support an army; an innumerable multitude.

TO ASCERTAIN THE WEIGHT OF CATTLE.

Measure the girth close behind the shoulder, and the length from the fore part of the shoulder blade along the back to the bone at the tail, which is in a vertical line with the buttock, both in feet. Multiply the square of the girth, expressed in feet, by five times the length, and divide the product by 21; the quotient is the weight, nearly, of the four quarters, in imperial stones of 14 lb. avoirdupois. For example, if the girth be 7 feet, and the length $5\frac{1}{4}$ feet, we shall have $6 \times 6 = 36$ and $5\frac{1}{4} \times 5 = 26\frac{1}{4}$; then $36 \times 26\frac{1}{4} = 945$, and this divided by 21 gives 45 stones exactly. It is to be observed, however, that in very fat cattle the four quarters will be about one-twentieth more, while in those in a very lean state, they will be one-twentieth less than the weight obtained by the rule.

Have faith in your farm.

OUR INSECT FOES.

Insect Foes and how to Fight Them.

[The species marked with an asterisk (*) have gained entrance into America from foreign countries and represent twenty-eight out of the sixty-three species listed. The origin of those preceded with an interrogation point is in doubt.]

REMEDIES FOR IMPORTANT INSECTS.

* Angoumois Grain Moth (*Sitotroga cerealella* Oliv.). Prompt threshing of grain after harvesting; bisulphide of carbon in bins and granaries; storage in bulk.

Apple-leaf Skeletonizer (*Canarsia hammondi* Riley). Spraying with arsenicals (Paris green and London purple) in June; hand picking of leaves with larvæ.

? Apple-root Plant Louse (*Schizoneura lanigera* Hausm.). Kerosene emulsion under and above ground; scalding water poured freely about roots; bisulphide of carbon under ground about roots; powdered tobacco or ashes incorporated in the soil.

Apple-tree Borer, Flatheaded (*Chrysobothris femorata* Fab.). Painting trunk and larger branches in June with strong soap solution, washing soda, or mixture of whitewash and Paris green.

? Army Worm (*Leucania unipuncta* Haw.). Burning over fields in winter; ditching; Paris green.

* Asparagus Beetle, Common (*Crioceris asparagi* Linn.). Prompt marketing of all canes; trap-plants; dusting with lime or arsenical mixtures; jarring larvæ to ground on hot days, especially if soil be sandy.

* Bean Weevil, Common (*Bruchus obtectus* Say). Treating with bisulphide of carbon in air-tight vessels.

* Black Scale (*Lecanium oleæ* Barn.). Kerosene emulsion on young scale or treatment with hydrocyanic acid gas.

Blister Beetles (*Epicauta vittata* Fab., *E. cinerea* Lec., *E. Pennsylvanica* De G., *Macrobasis unicolor* Kb.). Arsenicals, one pound to one hundred gallons of water.

Bollworm. (See Corn ear worm.)

Buffalo Gnat (*Simulium pecuarum* Riley.) Smudge; oil, grease, etc., applied to stock.

* Cabbage Bug, Harlequin (*Murgantia histrionica* Hahn). Spring collecting from trap mustard; hand picking.

* Cabbage Worms (*Pieris rapæ* Sch., *Plutella cruciferarum* Zell., *Plusia brassicæ* Riley). Pyrethrum; kerosene emulsion; Paris green, dry, with flour or lime—1 part of the poison in 50 to 100.

Cankerworm, Spring (*Paleacrita vernata* Peck). Arsenical mixtures in spray; trapping female moth in oil troughs or tar bands about trunks of trees.

* Carpet Beetle or "Buffalo Moth" (*Anthrenus scrophulariæ* L.). Benzine; hot ironing of carpets over damp cloth; killing by steam.

Chinch Bug (*Blissus leucopterus* Say). Burning wild grass land and all rubbish in early winter; kerosene emulsion; contagious disease; trap crops; ditching.

? Clothes Moth, Southern (*Tinea biselliella* Hum.). Brushing and airing; benzine; naphthalene; packing in bags of paper or cotton cloth; cold storage.

* Cockroach, German, Croton Bug (*Phyllodromia Germanica* L.). Pyre-

A farmer must have energy and trained common sense.

thrum or buhach; bisulphide of carbon in tight rooms or compartments away from fire.

*Codling Moth, apple worm (*Carpocapsa pomonella* Linn.). Arsenicals; first application as soon as blossoms fall; second, one or two weeks later, just before the fruit turns down on the stem; trapping larvæ by applying bands to the tree; prompt destruction of infested fallen fruit.

* Cotton Worm (*Aletia xyliana* Say). Paris green dusted on as dry powder.

Corn Root Worm (*Diabrotica longicornis* Say). Rotation of corn with oats or other crop.

* Cornstalk Borer, Larger (*Diatræa saccharalis* F.). Plowing under or burning stubble.

? Corn Ear Worm, Bollworm (*Heliothas armigeri* Hbn.). Late fall plowing; poisoned baits; for cotton, planting corn as trap crop.

Squash Borer (*Melittia ceto* Westw.). Planting early summer squashes to be destroyed; late planting of main crop; destruction of all vines attacked as soon as crop can be gathered; collecting moths.

Squash Bug (*Anasa tristis* De G.). Early burning of vines and all rubbish in fall; bi-weekly collection of eggs.

Strawberry Weevil (*Anthonomus siccatus* Say.) Trap crops; protecting beds with cloth covering; using staminate varieties as fertilizers only and as few plants of the former as necessary in spraying with paris green and Bordeaux mixture.

*Sugar-cane Borer (*Diatræa saccharalis* Fab.). Burning trash and laying down seed cane under ground.

Webworm, Fall (*Hyphantria cunea* Dr.). Prompt removal and destruction of webs and larvæ; arsenical spraying.

Our Feathered Friends and Foes.

Much misapprehension still exists among farmers as to the habits of birds of prey. Examination of the contents of the stomachs of such birds, to the number of several thousand, has established the fact that their food consists almost entirely of injurious mammals and insects, and that accordingly these birds are in most cases positively beneficial to the farmer, and should be fostered and protected.

Among those wholly beneficial are the large, rough-legged hawk; its near relative, the squirrel hawk, or ferruginous roughleg, and the four kites—the white-tailed kite, Mississippi kite, swallow-tailed kite, and everglade kite.

The class that is beneficial in the main—that is, whose depredations are of little consequence in comparison with the good it does—includes a majority of the hawks and owls, among them being the following species and their races: Marsh hawk, Harris's hawk, red-tailed hawk, red-shouldered hawk, short-tailed hawk, white-tailed hawk, Swainson's hawk, short-winged hawk, broad-winged hawk, Mexican black-winged hawk, Mexican goshawk, sparrow hawk, Audubon's caracara barn owl, long-eared owl, short-eared owl, great gray owl, barred owl, Western owl, Richardson's owl, Acadian owl, screech owl, flammulated screech owl, snowy owl, hawk owl, burrowing owl, pygmy owl, ferruginous pygmy owl, and elf owl.

The class in which the harmful and the beneficial qualities about balance each other includes the golden eagle, bald eagle, pigeon hawk, Richardson's hawk, Aplomado falcon, prairie falcon, and great horned owl.

The harmful class comprises the gyrfalcons, duck hawk, sharp-shinned hawk, Cooper's hawk, and goshawk.

The investigations upon which the foregoing statements were based were described at considerable length in the yearbook of the U. S. Department of Agriculture for 1894.

Spray Calender.—Selby and Webster.

What to Spray.	For what to Spray.	With What to Spray.	When to do Spraying.	Third Spraying	Fourth Spraying	Remarks and Cautions.
Apple	Bitter rot. Scab. Sooty fungus. Bud moth. Canker worm. Codlin moth. San Jose scale. Woolly aphid.	Ammoniacal cop. carb. Bordeaux mixture I. Bordeaux I. Arsenites in Bordeaux Arsenites alone, 7 or 8 Arsenites in Bordeaux I. Whale oil soap solution Kerosene emulsion Bordeaux I	With first appearance of rot. As buds are swelling. After blossoms drop. With opening of buds. With first young worms. After blossoms fall. As soon as leaves drop in fall. When trees are not in full leaf.	Two weeks later. Just before blossoms open. Two weeks later. In 1 week if worms remain. 7 to 10 days later. Just before fol. starts in Spr. In fall.	Not required if Bord. precedes 7 to 10 days later. 4th for scab. 4th for scab.	These follow Bord. for scab; danger on fair skin of apples. While skinned apples are in- jured by spraying after 8d. { 1½ to 2 lbs. soap dissolved in 1 gallon water. Don't use emul. in full leaf. Repeat if needed.
Bean	Anthracnose	Bordeaux I	Soak seed 1 to 2 h. in am. cop carb. five times strength of 3d.	Bord. on 2 to 3 in. plants.	Bordeaux 10 days later	After blossoms
Beet	Leaf spot.	Bordeaux I	When plants are 6-8 in. high	Two weeks after first	Two weeks later	After blossoms
Cabbage	Cabbage worm.	Pyrethrum	With first appearance of worms.	Whenever worms observed	Two weeks later	About two weeks later.
Cherry Stocks	Leaf spot.	Bordeaux II	When leaves are half grown	Two weeks later.	Two weeks later	Two weeks later II or 8.
Cherry	Leaf spot. Rot (?) Aphis Kerosene emulsion. Cherry slug. Curculio San Jose scale.	Bordeaux II and II Bordeaux I Kerosene emulsion Arsenites in Bord. II Arsenites in Bord. I and II Whale oil soap solution	When leaves are unfolding Before blossoming I On first appearance of aphid When slugs appear Before blossoming in I In fall as with the apple	Two weeks later. After blast drop II on fruit. Repeat if slugs remain. As blossoms dry up in II As with the apple	Two weeks later II or 8. Two weeks later II on fruit. One week later in II	First after blossoming. Use 3 when fruit is large. Difficult to reach aphid. Air slaked lime may be used. Avoid strong solutions.
Cucumber	Anthracnose Spot of fruit	Bordeaux I Bordeaux I	When plants begin to vine After first blossoms	Two weeks later Two weeks after second	Two weeks after third Two weeks after third	Cover fruit and leaves. Apply to fruit carefully.
Corn	Leaf spot. Plant bug. San Jose scale Worm	Bordeaux I. Kerosene emulsion Whale oil soap solution White hellebore	As leaves are unfolding. May As with the apple. When worms first appear	Two weeks later Early June if necessary. In spring as with apple. In 3 or 4 days repeat.	Two weeks later. Repeat as second	This trout is diff. to prevent.
Cornberry	Leaf spot. Mildew Worm	Bordeaux I Bordeaux I or 6 White hellebore	As currants with leaf spot Before leaves open I As on currants.	As currants with leaf spots. After blossoming I	As currants with leaf spot. Polass. sulid 2 weeks later	Bord. coats fruit if used for 8d
Grape	Anthracnose Downey and powdery mildew Rot. Leaf hopper	Bordeaux I Bordeaux I and 3 Kerosene emulsion	Just before buds open Just before blossoming Just before buds open Before young can fly	Just before blossoming After fruit has set. Just before blossoming	10 days later, Bordeaux 10 days later, Bordeaux	Don't spray after fruit is half grown. Cover by spraying for anthrac- nose or rot. Follow by 2 or 3 sprayings with am. cop. carb. Don't spray after fruit is half grown.
Madison	Leaf blight.	Bordeaux I	When plants begin to vine	Three weeks after second	Two weeks after third.	Second even probably not Cover fruit well. Every 7-10 days repeat
Peach	Leaf curl Pustular spot Rot (?) Scab Bud moth San Jose scale	Bordeaux I and 3 or cop- sulphate Bordeaux II Bordeaux I and II Bord. I or cop. sul. sol Arsenites in Bord. I Whale oil soap solution	As buds are swelling, Bord. I or cop. sul. sol Just after calyx drops As buds are swelling I As buds are swell. Bord. I or 4 With opening of buds As soon as leaves drop in fall.	Later not required Two weeks later. 3 to 4 weeks later II Two weeks later Bord. II	As fruit begins to color II Two weeks later Bordeaux II	Use only usual amount of poison. 5 to 7 sprayings are needed. Use 3 for 8d. not Bord. after 2d Bordeaux after second may in- jure fruit.
Rasp. Stocks	Leaf spot or blight.	Bordeaux I	When leaves are half grown	Two weeks later	Two weeks later	Use 3 for 8d. not Bord. after 2d Bordeaux after second may in- jure fruit.
Rasp.	Leaf spot Scab Bud moth Canker worm Codlin moth San Jose scale Slug	Bordeaux I and 3 Bordeaux I Arsenites in Bord. I Arsenites in Bord. I Whale oil soap solution Arsenites in Bord. I	When leaves are half grown Before blossoms open With opening of buds As with the apple After blossoms fall As soon as leaves drop in fall When slugs appear	Two weeks later Two weeks after second. Bord. may make russet fruit.	Two weeks later Bord. may make russet fruit.	1½ to 2 lbs. soap dissolved in 1 gallon water.

DIRECTORY.

Live Stock Associations.

Cattle Breeders' Associations.

Compiled for American Agriculturist year book by Chief D. E. Salmon of United States Bureau of Animal Industry and corrected to Apr. 1, 1897, or later, supplemented with special reports from a number of the associations.

American Aberdeen-Angus Breeders' Association.—Org. 1883 at Chicago. Memb. 325 from 26 states, three Canadian provinces. Vols. 1-7, 1885 to 1896, reg. 10,735 males, 15,427 females. Sales 1896-7 were 2050. Price ranged from \$75 to \$800. Ave. \$200. Thomas Mc arlane, Sec., Harvey, Ill.

American Branch Association of the North Holland Herd Book.—Fred H. Beach, Sec., Dover, N. J.

American Devon Cattle Club.—L. P. Sission, Sec., Wheeling, W. Va.

American Galloway Breeders' Association.—Frank B. Hearne, Sec., Independence, Mo. Assets \$5015. Next meeting Nov. 1898, at Kansas City, Mo., will exhibit at Trans-Mississippi fair.

American Guernsey Cattle Club.—Prof William H. Caldwell, Sec., Peterboro, N. H.

American Hereford Cattle Breeders' Association.—C. R. Thomas, Sec., Independence, Mo. Memb. 972. Receipts 1897, \$12,610; assets, \$26,000; appropriation, \$3000 for Trans-Mis. fair; 5200 animals transferred during 1897.

American Jersey Cattle Club.—J. J. Hemingway, Sec., No 8 West 17th street, N. Y. Org. 1868. Memb. 450 from 40 states and four provinces. Vols. 1-36; reg. 48,272 males, 124,276 females. Sales 1896-7, aver. 13,765.

American Jersey Herd Book.—O. B. Hadwen, Sec., Worcester, Mass.

American Shorthorn Breeders' Association.—J. H. Pickrell, Sec., Springfield, Ill. Cash balance in 1897 was \$33,000. Prosperity reported during 1896-97.

American Sussex Association.—Overton Lea, Sec., Nashville, Tenn.

Ayrshire Breeders' Association.—C. M. Winslow, Sec., Brandon, Vt. Org. 1875 at Albany, N. Y. Memb. 212. Vols. 1-11, from 1876 to 1896, include 6163 males, 13,968 females, rep. 24 states and two provinces.

Brown Swiss Cattle Breeders' Association.—N. S. Fish, Sec., Groton, Ct. Org in 1880 at Worcester, Mass. Rec. in two vols. 928 males, 1401 females. Memb. 38, rep. 35 states. Sales in 1896-97, 160.

Dutch Belted Cattle Association.—H. B. Richards, Sec., Easton, Pa. Org. 1886 at New York. Memb. 35. Vols. 1-5 from 1886 to 1897 reg. 325 males, 789 females. Range of prices up to \$1000.

Holstein-Friesian Association of America.—Frederick L. Houghton, Sec., Brattleboro, Vt. Org. in 1885 in New York. Last vol. closed June 1896. Memb. 520.

Holstein-Friesian Advanced Register.—S. Hoxie, Supt., Yorkville, N. Y.

Maine State Jersey Herd Book.—N. R. Pike, Sec., Winthrop, Me. Org. 1875 at Winthrop, Me. Memb. 296. Vols. 1-3, reg. 1179 males, 3204 females. Sales rec. 1896-7, 102.

Red Polled Cattle Club of America (incorporated).—J. McLain Smith, Sec., Dayton, O. Is making rapid growth. Offers prizes at the Trans-Mis. fair.

Red Polled Cattle Club of America.—J. C. Murray, Sec., Maquoketa, Ia.

American Polled Durham Breeders' Association.—J. H. Miller, Sec., Chicago, Ill. Org. 1889 at Chicago, Ill. Memb. 79 from 13 states. Vols. 1-2, from 1894 to 1897, record 470 males, 1000 females. Price from \$450 down.

Western Holstein-Friesian Association.—J. H. Coolidge, Jr., Sec., Galesburg, Ill.

American Polled Jersey Cattle Club.—J. S. Brown, Cedarville, O., Sec.

Horse Breeders' Associations.

American Association of Importers and Breeders of Belgian Draft Horses.—J. D. Connor, Jr., Sec., Wabash, Ind.

American Breeders' Association of Jacks and Jennets.—J. W. Jones, Sec., Columbia, Tenn.

American Cleveland Bay Breeders' Association.—R. P. Stericker, Sec., Springfield, Ill. Org. Nov. 1885 at Chicago. Memb. 48 from 16 states, two provinces. Vols. 1-2, Dec. 1886 to 1891, rec. to June 25, 1897, 1074 males, 379 females.

American Clydesdale Association.—Alex. Galbraith, Sec., Janesville, Wis. Org. at Chicago, 1879. Memb. 357 from 21 states and three Canadian provinces. Vols. 1-8, years 1881 to 1894. Reg. 8600 males and females. This is the pioneer draft horse association in the continent.

American Percheron Horse Breeders' Association.—S. D. Thompson, Sec., Chicago, Ill.

American Shire Horse Breeders' Association.—Charles Burgess, Sec., We-

Put the saddle on the right horse.

Live Stock Associations.—Continued.

nona, Ill. Sales very satisfactory during 1896-97.

American Stud Book (Thoroughbred)—James E. Wheeler, Reg., 173 Fifth avenue, N. Y.

American Trotting Registry Association—J. H. Steiner, Sec., Room 1103, Ellsworth building, 355 Dearborn st., Chicago, Ill. Org. at Chicago, 1891. The Association has published 13 volumes of the American Trotting Register, the first volume being published in 1871 and volume XIII in 1895. The secretary is now compiling Vol. XIV. About 30,000 stallions have been registered as standard, and probably 75,000 mares, mares not being numbered. This Association is the successor of the Wallace Trotting Registry Co., formerly of New York city, the first nine volumes of the Register being published by Mr John H. Wallace and the Wallace Trotting Register Co.

French Coach Horse Society of America—S. D. Thompson, Sec., Chicago, Ill.

National French Draft Horse Association—C. E. Stubbs, Sec., Fairfield, Ia. Org. at Chicago, Feb., 1886. Memb. limited to 250, rep. all the horse raising states and two provinces. Vols. 1-6, of rec. from 1881-1890. Rec. to July, 1897, shows 6831 males, 3002 females.

Select Clydesdale Horse Society of America—Charles Irwin, Sec., Topeka, Kan.

American Suffolk Punch Horse Association—Alex. Galbraith, Sec., Janesville, Wis.

German Coach Horse Association of America—J. Crouch, Sec., Lafayette, Ind.

The Morgan Register—Joseph Battell, editor, Middlebury, Vt.

The Oldenburg Coach Horse Association of America—C. E. Stubbs, Sec., Fairfield, Ia.

American Hackney Horse Society—William Seward Webb, Sec., 51 East 44th street, N. Y.

The National Saddle Horse Breeders' Association—I. B. Nall, Sec., Louisville, Ky.

American Saddle Horse Association—Charles F. Mills, Sec., Springfield, Ill.

American Shetland Pony Club—Mortimer Levering, Sec., Lafayette, Ind. Org. Dec. 1887, at Chicago. Memb. 131. Vols 1-2, Dec. '93 and Dec. '95. Rec. 2900 males and females. Sales, 1896-7, were 400. Price \$60 to \$1000; ave. \$115.

American Hackney Stud Book Association—J. G. Truman, Sec., Bushnell, Ill.

Sheep Breeders' Associations.

American Cheviot Sheep Breeders'

Association—R. L. Davidson, Sec., Cooperstown, N. Y.

Canadian Dorset Horn Association—Henry Wade, Sec., Toronto, Can.

American Cotswold Association—Geo. Hardin, Sec., Waukesha, Wis.

American Leicester Breeders' Association—A. J. Temple, Sec., Cameron, Ill.

American Merino Sheep Association—A. H. Graig, Sec., Caldwell, Wis.

American Oxford-Down Sheep Association—W. A. Shafor, Sec., Middletown, O. Org. at Cincinnati, O., in 1882. Memb. 104 from 26 states, three Canadian provinces. Vols 1-6, yrs 1883-96. Rec. to date, 5319 males, 8686 females.

American Merino Sheep Register—A. H. Craig, Sec., Waukesha, Wis.

American Southdown Breeders' Association—John G. Springer, Sec., Springfield, Ill. Org. at Springfield, Ill., June, 1882. Memb. 147 from 22 states, one Canadian province. Vols. 1-6, years 1884-96. Reg. 3900 males, 6068 females.

American Shropshire Registry Association—Mortimer Levering, Sec., Lafayette, Ind. Org. at Lafayette, Ind., 1884. Memb. 1600 from 44 states, seven Canadian provinces. Vols. 1-12, closed Sept. '85 to Sept. '96. Rec. to June '97, is 100,225 male and female. Sales '96-7, 6500; price \$10 to \$400; ave. price, \$36.

Hampshire-Down Breeders' Association of America—John I. Gordon, Sec., Mercer, Pa. Org. Nov. '89, at Chicago. Memb. 108. Vols. 1-4, years '90 to '96. Reg. 1448 males, 3782 females. Appropriated \$150 for Trans-Mis. fair.

American Rambouillet Sheep Breeders' Association—L. B. Townsend, Sec., Ionia, Mich.

American Suffolk Association—Geo. W. Franklin, Sec., Atlantic, Ia.

American Southdown Association—S. E. Prather, Sec., Springfield, Ill.

Choteau County Wool Growers' Association—W. K. Harber, Sec., Fort Benton, Mont.

Beaverhead County Wool Growers' Association—T. M. Selway, Sec., Dillon, Mont.

Custer County Wool Growers' Association—A. S. Wiley, Sec., Miles City, Mont.

Black Top Spanish Merino Sheep Breeders' Association—W. G. Berry, Sec., Houstonville, Pa.

California Wool Growers' Association—F. S. Moody, Sec., San Francisco, Cal.

Colorado State Wool Growers' Association—H. W. Leighton, Sec., Trinidad, Colo.

Dominion Sheep Breeders' Association

Live Stock Associations.—*Continued.*

tion—George H. Greig, Sec., Winnipeg, Man., Can.

Dominion Sheep Breeders' Association.—F. W. Hodson, Sec., London, Ontario, Can.

Dorset Horn Sheep Breeders' Association of America—M. A. Cooper, Sec., Washington, Pa.

Delaine Sheep Breeders' Association—J. C. McNary, rec. sec., Houstonville, Pa.; J. H. Hamilton, cor. sec., Canonsburg, Pa.

Dickinson Merino Sheep Record Company—H. G. McDowell, Sec., Canton, O.

Fergus Co. Wool Association—Arthur Stoddard, Sec., Livingston, Mont.

Hampshire Down Breeders' Association—John I. Gordon, Sec., Mercer, Pa.

Indiana Wool Growers' Association—J. W. Robe, Sec., Greencastle, Ind.

Illinois Sheep Breeders' Association—John G. Springer, Sec., Springfield, Ill.

Improved Black Top Merinos S. B. Association—L. M. Crothers, Sec., Taylorstown, Pa.

Idaho Wool Growers' Association—W. T. Montgomery, Sec., Mountain Home, Ia.

Iowa Sheep Breeders' and Wool Growers' Association—J. J. Edgerton, Sec., Ames, Ia.

Indiana National Dickinson Delaine Wool-Mutton Sheep Breeders' Association—U. C. Brouse, Sec., Kendallville, Ind.

Improved Black Top Merino Sheep Breeders' Association—L. M. Crothers, Sec., Crothers, Pa.

Improved Delaine Merino Sheep Breeders' Association—George W. Poland, Sec., Urbana, O.

Melville Wool Growers' Association—Robt. Brownlee, Sec., Melville, Mont.

Michigan Merino Sheep Breeders' Association—E. N. Ball, Sec., Hamburg, Mich.

Meagher County W. G. Association—H. J. Giltinan, Sec., White Sulphur Springs, Mont.

Missouri Merino Sheep Breeders' Association—H. V. Pugsley, Sec., Plattsburg, Mo.

Missouri Wool Growers' Association—Geo. W. Wallace, Sec., Santa Fe, N. Mex.

Montana Wool Growers' Association—Barnard Brown, Sec., Helena, Mont.

National Wool Growers' Association—W. G. Markham, Sec., Avon, N. Y.

National Cheviot Sheep Society—J. A. Williams, Sec., Fincastle, Ind.

New Mexico Wool Growers' Association—George Arnot, Sec., East Las Vegas, N. Mex.

New York Wool Growers' Association—F. D. Ward, Sec., Batavia, N. Y.
North Dakota Wool Growers' Association—P. B. Wickham, Sec., Glenullin, N. D.

National Lincoln Association—H. A. Daniels, Sec., Elva, Mich.

New York State Sheep Breeders' Association—F. C. Benham, Sec., Hopewell Center, N. Y.

National Delaine Merino Association—J. H. Hamilton, Sec., Canonsburg, Pa.

National Improved Saxony Sheep Breeders' Association—John G. Clarke, Sec., Lagonda, Pa.

National Merino Sheep Register Association—R. O. Logan, Sec., California, Mich. Org. at Caldwell Prairie, Wis., June, 1881. Memb. 125 from 18 states. Vols. 1-2; reg. pub. (1882-85.) Animals recorded to date, 30,000 to 50,000. Best price during 1896-97 was \$50.

New York State American Merino Sheep Breeders' Association—J. Horatio Earll, Sec., Skaneateles, N. Y. Org. 1879. Two vols. Rec. published, years of 1883-89.

Ohio Spanish Merino Sheep Breeders' Association—F. C. Stanley, Sec., Edison, O.

Ohio Wool Growers' Association—W. N. Cowden, Sec., Quaker City, O.

Pennsylvania and Ohio Improved Delaine Merino Sheep Breeders' Association—S. M. Cleaver, Sec., East Bethlehem, Pa.

National Lincoln Sheep Breeders' Association—H. A. Daniels, Sec., Elva, Mich. Org. 1891; 4157 sheep recorded; 117 members.

South Dakota S. B. and Wool Growers' Association—W. F. T. Bushnell, Sec., Aberdeen, S. D.

Standard Delaine Spanish Merino Association—S. M. Cleaver, Sec., East Bethlehem, Pa.

Shropshire Breeders' Association—J. M. Ladd, Sec., Victor, N. Y.

Saxony Wool Growers' Association—John G. Clark, Sec., Washington, Pa.

Standard Merino Register Association—John P. Ray, Sec., Hemlock Lake, N. Y.

Texas Wool Growers' Association—Geo. Richardson, Sec., San Angelo, Tex.

Tunis Sheep Breeders' Association—Chas. Rountree, Sec., Yountsville, Ind.

Teton County Wool Growers' Association—E. R. Kellogg, Sec., Bellevue, Mont.

United States Merino Sheep Breeders' Registry Association—J. A. B. Walker, Sec., Enon Valley, Pa.

Utah Wool Growers' Association—E. H. Callister, Sec., Salt Lake City, Utah.

Lean pastures, lean cattle and lean farmer.

Live Stock Associations.—Continued.

Vermont Atwood Club Register—Geo. Hammond, Sec., Middlebury, Vt.

Vermont Merino Sheep Breeders' Association—L. A. Skiff, Sec., Middlebury, Vt. Org. at Middlebury, Mar. 1876. Memb. 100. Four vols. of register published.

Wisconsin Sheep Breeders' and Wool Growers' Association—Merino Sheep Register, H. J. Wilkinson, Sec., White-water, Wis.

Wool Growers' Association of North Dakota—Chas. Krauth, Sec., Hebron, N. D.

West Virginia Wool Growers' Association—James Beall, Sec., Wellsburg, W. Va.

Western Nebraska Wool Growers' Association—G. W. Nation, Sec., Wiley, Neb.

Washington County Wool Growers' Association—John G. Clark, Sec., Lagonda, Pa.

Yellowstone County Wool Growers' Association—L. D. O'Donnell, Sec., Billings, Mont.

Swine Breeders' Associations.

American Berkshire Association—Charles F. Mills, Sec., 512 East Monroe street, Springfield, Ill.

American Duroc-Jersey Swine Breeders' Association—S. E. Morton, Sec., Camden, O.

American Essex Association—F. M. Srout, Sec., McLean, Ill. Org. Aug. 1887, at Springfield, O. Memb. 40 from 14 states, two provinces. Vols. 1-4 from 1890-97. Rec. 689 males, 1046 females; 80 sales during 1896-97.

American Small Yorkshire Club—George W. Harris, Sec., 3409 Third avenue, N. Y.

Cheshire Swine Breeders' Association—E. W. Davis, Sec., Oneida, N. Y.

Chester White Record Association—W. H. Morris, Sec., Indianapolis, Ind. Org. at Indianapolis, Ind., 1890. Memb. 61 in 16 states. Vols. 1-6 ending Apr. 1897. Rec. 3000 males, 4800 females.

Todds' Improved Chester White Record Association—Carl Freigau, Editor, Dayton, O.

Gothland Swine Breeders' Association—Grant W. Spear, Sec., Aurora, Ill.

American Poland-China Record Co.—W. M. McFadden, Sec., West Liberty, Ia.

Central Poland-China Record Association—W. H. Morris, Sec., Indianapolis, Ind. Org. at Indianapolis, Ind., 1881. Memb. 1050 in 15 states. Pub. 18 vols. of reg. Rec. 7000 males, 22,000 females.

Northwestern Poland-China Swine Association—J. B. Besack, Sec., Washington, Kan.

Ohio Poland-China Record Co—Carl Freigau, Sec., Dayton, O.

Standard Poland-China Record Association—Geo. F. Woodworth, Sec., Maryville, Mo. Org. Jan. 1887, at Maryville, Mo. Memb. 476. Vols. 1-11 pub. from Jan. 1887, to Feb. 1, 1897. Rec. of 18,500 males, 43,490 females. Highest price during 1896-7 was \$3600.

Victoria Swine Breeders' Association—H. Davis, Sec., Dyer, Ind.

Suffolk Swine Association—W. F. Watson, Sec., Winchester, Ind.

National Berkshire Record Association—E. K. Morris, Sec., 467 South Illinois street, Indianapolis, Ind.

National Duroc-Jersey Record Association—Robert J. Evans, Sec., El Paso, Ill.

American Tamworth Hog Association—Arthur H. Chester, Sec., Boston, Mass.

The American Yorkshire Club—William F. Wilcox, Sec., Benson, Minn.

Poultry Breeders' Associations.

Giving names of societies by states, with address of secretary. Where the date on which the fairs are usually held accompanied the report the month is indicated.

ALABAMA.

Alabama Poultry and Pet Stock Association.

ARKANSAS.

Arkansas Poultry Association, Little Rock; W. H. Westbrook, Pine Bluff, Sec.

CANADA.

Victorian Era Exposition and Industrial Fair, Toronto; H. J. Hill, Sec. Show in Sept.

Woodstock Poultry and Pet Stock Association.

Ontario Poultry Association, London—T. A. Browne, Sec.

Vancouver Poultry Association, Vancouver, B. C.

Eastern Ont. Poultry and Pet Stock Association—Alfred Geddes, Ottawa, Sec.

CALIFORNIA.

Los Angeles Co. Poultry Association, Los Angeles—H. W. Kruekeburg, Sec. Jan.

Alameda Co. Poultry Association, Oakland.

Santa Rosa American Minorca Association.

Cal. State Poultry Association, San Jose.

CONNECTICUT.

Danbury and Bethel Poultry Association, Danbury—F. Bowman, Sec. Show in Dec.

Live Stock Associations.—Continued.

Seymour P. and P. Association, Seymour—H. D. Hendrick, Sec., Shelton. Dec.

Eastern Connecticut Poultry Association, New London—C. B. Smith, Sec. Dec.

New Haven Poultry Association, New Haven—N. D. Forbes, Sec., Montowese. Dec.

Connecticut State Poultry Association, Hartford—G. P. Merritt, Sec. Jan.

Ansonia Poultry and Pigeon Association, Ansonia—G. A. Hill, Sec. Jan. Shelton Association, Derby.

COLORADO.

Colorado State Poultry Association, Denver.

Pike's Peak Poultry Association, Colorado Springs.

Southern Colorado Poultry Association.

National Poultry and Pigeon Association, Washington, D. C.

GEORGIA.

Atlanta Poultry Association.

Georgia Poultry and Pet Stock Association, Augusta.

IDAHO.

Idaho Poultry Association, Caldwell.

ILLINOIS.

Rock River Poultry Association, Prophetstown—W. W. Moyer, Sec. Dec.

Rock River Valley Poultry Association, Dixon—F. W. Fargo, Sec. Dec.

Egyptian Poultry Association, Coulterville—Samuel Eyre, Sec. Dec.

Bloomington Poultry Association, Bloomington—J. D. Shipley, Sec., Normal. Dec.

Central Illinois Poultry Association, Princeton—A. C. Best, Sec. Dec.

Palmyra Poultry Club, Palmyra—S. A. Rigg, Sec. Dec.

Logan Co. Poultry Association, Lincoln—F. A. Hickman, Sec. Dec.

Dixon Poultry Association.

Geneseo Poultry Show, Geneseo—W. G. Warnock, Sec. Jan.

Peoria Feathered Stock Association, Peoria—Dr J. O. Gable, Sec. Jan.

Northern Illinois Poultry Association, Rockford—A. H. Currier, Sec. Jan.

Illinois Valley Poultry Association, Henry—A. G. Humphrey, Sec. Jan.-Feb.

National Fanciers' Association, Chicago—C. S. Weaver, Sec. Jan.

Morrison Poultry Club.

La Salle Co. Poultry Association, Streator.

Northwestern Illinois Poultry Association, Lanark.

West Illinois Poultry and Pet Stock Association, Rock Island.

Springfield Poultry Association, Champaign.

INDIANA.

Indiana State Poultry Association, Indianapolis—T. W. Pottage, Sec. Jan.

North Central Indiana Poultry and Pet Stock Association, Logansport—S. D. Brandt, Sec. Jan.

Columbia City Poultry Association.

Indiana Fanciers' Association, Roachdale.

Howard Co. Poultry and Pet Stock Association.

Western Indiana Poultry Association, Cocomo, Crawfordsville.

IOWA.

Ringgold Co. Poultry Association, Mt Ayr—W. E. Burleigh, Sec. Nov.

Linn Co. Poultry Association, Cedar Rapids—C. H. Playter, Sec. Jan.

Cedar Rapids Poultry Association.

Des Moines Valley Poultry Association, Ottumwa.

Wapsie Valley Poultry Club, Independence.

Western Iowa Poultry and Pet Stock Association, Council Bluffs.

Iowa State Poultry Association, Creston.

Northern Iowa Poultry Association, Hampton.

Ottumwa Poultry Association.

Hawkeye Poultry Association, Mt. Pleasant.

KANSAS.

Harvey County Poultry Association, at Sedgwick—W. M. Congdon, Sec. Dec.

Parsons and S. E. P. Association, Parsons—J. R. Alexander, Sec. Dec.

Miami Co. Poultry Association, Paola—E. E. Johnson, Sec. Dec.

Western Pigeon Club, Topeka—M. F. Hankla, Sec. Dec.

Franklin Co. Poultry Association, Ottawa—Mrs D. F. Heiser, Sec. Dec.-Jan.

Cherryvale Poultry Association.

Salina Co. Poultry Association, Salina.

Horton Poultry Association.

KENTUCKY.

Kentucky State Poultry Association, Louisville—J. B. Mount, Sec., Lagrange. Jan.

Owensboro Poultry Association.

When you see a bug or a weed, kill it.

Live Stock Associations.—Continued.

MASSACHUSETTS.

Fall River Poultry and Pigeon Association, Fall River—H. S. Winslow, Sec. Dec.

Norfolk Co. Poultry Association, Milford—W. H. Pyne, Sec. Dec.

Merrimac Valley Poultry Association, Haverhill—G. H. Greenman, Sec. Dec.

Fitchburg Poultry and Pet Stock Association, Fitchburg—J. D. Brown, Sec. Dec.

Hoosac Valley Poultry and Pet Stock Association—A. G. Nichols, Sec. Boston Poultry Association.

Essex Co. Poultry Association, Beverly—A. W. Tyler, Sec., Peabody. Jan.

Boston. A. R. Sharp, Supt., Taunton, Mass. Jan.

Amesbury Poultry Association.

Eastern Middlesex Poultry Association, Saugus.

Mass. Columbarian Association, Brookline.

Northampton Poultry Association.

Highlandville Poultry Association, Dedham.

MAINE.

Freeport Poultry Association.

St Croix Poultry and Pet Stock Association, Calais.

MARYLAND.

Hagerstown—J. L. Cost, Sec. Oct.

Frederick Fair, Frederick City—H. C. Keefer, Sec. Oct.

MICHIGAN.

Central Mich. Poultry Association, Lansing—C. H. Crane, Sec. Dec.

Michigan State Poultry and Pet Stock Association, Detroit—F. W. McKenzie, Sec., Concord. Jan.

Mich. Poultry Association, Grant.

Michigan State Poultry Association, Paw Paw.

Upper Peninsula Poultry and Pet Stock Association, Marquette.

MINNESOTA.

Hutchinson Poultry Association.

Northern Wisconsin and Northern Minnesota.

Poultry Association, Duluth.

MISSOURI.

North Missouri Poultry and Pet Stock Association, Kirksville—E. M. Durham Sec., La Plata. Nov.

Jackson Co. Poultry Association, Independence—W. Bostian, Sec. Nov.

Laclede Co. Poultry Association

Lebanon—G. H. Hinds, Sec. Nov.-Dec.

St Louis Fanciers' Association, St Louis—J. H. Ahrens, Sec. Dec.

S. W. Mo. P. Association Clinton—W. H. Talbert, Sec. Dec.

Mid-Continental Poultry Association, Kansas City—F. M. Slutz, Sec. Dec.

Cooper Co. Poultry Association, Bunceton.

Standard Poultry Club, Kirksville.

Missouri State Poultry Association, Warrensburg.

Northwest Poultry Association, Stanbury.

NEBRASKA.

Nemaha Valley Poultry Association, Auburn—L. Alspaugh, Sec. Nov.-Dec.

Buffalo County Poultry Association, Elk Creek.

Interstate Poultry Association, Falls City.

Northwestern Nebraska Poultry Association, Beatrice.

South Platte Poultry Association, Geneva.

NEW HAMPSHIRE.

Milford Poultry and Pet Stock Association, Milford—W. D. Sargent, Sec. Jan.

New Hampshire Poultry Association, Concord.

NEW JERSEY.

Garden State Poultry and Pigeon Association, Hackensack.

NEW MEXICO.

N. M. Poultry Association, Albuquerque.

NEW YORK.

Erie Co. Poultry Breeders' Association, Buffalo—E. C. Pease, Sec., Hamburg. Jan.

Rochester Poultry, Pigeon and Pet Stock Association, Rochester—J. J. Beveridge, Sec., 88 Lowell St. Jan.

New York Poultry and Pigeon Association, Madison Square Garden—H. V. Crawford, Sec., Montclair, N. J. Feb.

N. Y. Canastota Poultry Pet Stock Association.

Elmira Poultry Association.

Madison Square Garden, N. Y.—H. V. Crawford, Sec., Montclair, N. J.

Orange County Agricultural Society, Middletown—D. Lincoln Orr, Supt., Orrs Mills, N. Y. Sept.

Adirondack Poultry and Pet Stock Club, Johnstown—H. J. Quilhot, Sec. Nov.

Seneca Poultry and Pigeon Association, Seneca Falls—Fred Hobel, Sec. Nov.-Dec.

Oneonta Poultry and Pet Stock As-

Farming will pay so long as people continue to eat.

Live Stock Associations.—Continued.

sociation, Oneonta—A. I. Relyea, Sec. Dec.

Rochester Fanciers' Club, Rochester—J. F. Tallinger, Sec. Dec.

NORTH CAROLINA.

Cleveland Poultry and Pet Stock Association, Shelby.

Ashley Poultry and Pet Stock Association, Ashley—E. C. Sipe, Sec. Nov.

OHIO.

Miami Poultry Association, Miamisburg—L. Dosch, Sec. Dec.

Northern Ohio Poultry and P. S. Association, Cleveland—F. R. Hunt, Sec. Dec.

Associated Fanciers' Association, Sandusky—E. G. Rogers, Sec. Dec.

Ashland Co. Poultry Association, Ashland—H. A. Mykrantz, Sec. Dec.

Springfield Fanciers' Association, Springfield—W. H. Holmes, Sec. Dec.-Jan.

Mansfield Poultry, Pigeon and Pet Stock Association, Mansfield—C. W. Etz, Sec. Dec.-Jan.

Buckeye Poultry Association.

Cleveland and Ohio Poultry Association, Cleveland.

Eastern Ohio Poultry Association, Letonia.

Canton Poultry Association, Canton—Wm. Friedman, Sec. Jan.

Southern Ohio Poultry Association, Washington C. H.—W. R. Dalbey, Sec. Jan.

Consolidated Poultry Association, Bluffton—D. J. Kohli, Sec. Feb.

Carey Poultry and Pet Stock Association, Carey—T. W. McClure, Sec.

Ashley Poultry and Pet Stock Association.

Toledo Fanciers' Association.

Medina Poultry and Pet Stock Association, Chatham.

PENNSYLVANIA.

Mt Gretna Agricultural Exposition, Mt Gretna—M. B. Blauch, Sec., Lebanon. Aug.

Titusville Poultry Association, Titusville—C. M. Hayes, Sec. Dec.

West Chester Poultry Association, West Chester—F. D. Reid, Sec. Dec.

Wilkes Barre Poultry Association, Wilkes Barre—E. S. Kirkhuff, Sec. Dec.

Berks County Pigeon Association, Reading, Pa.

Schuylkill Valley Poultry Association.

Northwestern Penn. Poultry Association, Erie.

Pittsburg Poultry and Pet Stock Association.

Seranton Poultry and Pet Stock Association.

RHODE ISLAND.

Rhode Island Poultry Association, Pawtucket—H. S. Babcock, Sec., Providence. Dec.

SOUTH CAROLINA.

Palmetto Poultry and Pet Stock Association, Greenville.

Spartansburg Poultry Association.

SOUTH DAKOTA.

Davison Co. Poultry Association, Mitchell.

TENNESSEE.

Tennessee Poultry, Pigeon and Pet Stock Association, Nashville—J. M. Hopkins, Sec. Jan.

Tennessee Fanciers' Association, Nashville.

Upper East Tenn. Poultry Association, Johnson City.

West Tenn. Poultry Association, Jackson.

Virginia and Tenn. Poultry Association, Bristol.

TEXAS.

Dallas Poultry, Pigeon and P. S. Association, Dallas—H. M. Skelton, Sec. Dec.

Central Texas Poultry and Pet Stock Association, Waco.

San Marcos Poultry Association.

San Antonio Poultry Association.

Williamson Co. Poultry and Pet Stock Association, Taylor.

VERMONT.

Vermont Poultry and Pet Stock Association, St Johnsbury—F. M. Ranney, Sec. Jan.

Old Dominion Poultry and Pigeon Association, Hamilton—R. J. Reid, Sec. Nov.

Roanoke Valley Poultry Association, Salem.

WASHINGTON.

Tacoma Poultry Association, Tacoma—Stephen Holbrooke, Sec. Dec.

WISCONSIN.

LaCrosse Poultry Association.

Ohio Cochin Club, Kent, O.

Pouter Club, Louisville, Ky.

Rochester Fanciers' Club, Rochester, N. Y.

Southern Langshan Club, New Berne, N. C.

Pare down your points of pride.

Live Stock Associations.—Continued.

Stoneham Fanciers' Club, Stoneham, Mass.
Swallow Club, Boston, Mass.
Tumbler Club (East) Melrose, Mass.
Tenn.
Waterfowl Club of America, Brookdale, N. J.

Poultry Specialty Clubs.

For information or membership, apply to the secretaries.

American Buff Leghorn Club—President, Aug. D. Arnold, Dillsburg, Pa.; Secretary, E. P. Shepherd, Croton Falls, N. Y.

American Black Minorca Club—Pres., J. H. Santee, Chenango Bridge, N. Y.; Sec.-Treas., John A. Gamewell, Hackensack, N. J.

American Minorca Association—Pres., C. H. Schiefer, Santa Rosa, Cal.; Sec.-Treas., Ed. Ellis, Santa Rosa, Cal.

American Buff Plymouth Rock Club—Pres., J. D. Wilson, Worcester, N. Y.; Sec.-Treas., Wm. C. Denny, Rochester, N. Y.

American Cochín Club—Pres., D. A. Nichols, Monroe, Conn.; Sec.-Treas., Arthur R. Sharp, Taunton, Mass.

American Barred Plymouth Rock Club—Pres., Geo. O. Brown, Baltimore, Md.; Sec.-Treas., F. J. Marshall, Asheville, N. C.

American Dorking Club—Pres., Henry Hales, Ridgewood, N. J.; Sec.-Treas., F. H. Prentice, North Grafton, Mass.

American Leghorn Club—Pres., Jas. Forsyth, Owego, N. Y.; Sec.-Treas., Ezra Cornell, Ithaca, N. Y.

American Langshan Club—Pres., Chas. A. Watson, Denver, Col.; Sec.-Treas., R. T. Nettle, Peoria, Ill.

Southern Langshan Club—Pres., S. T. Lea, Hodges, S. C.; Sec.-Treas., J. H. Davis, Hapeville, Ga.

American Dominique Club—Sec.-Treas., R. W. Roberts, Camroden, N. Y.

Eastern White Wyandotte Club—Pres., Edw. H. Knapp, Fabias, N. Y.; Sec.-Treas., W. E. Mack, Woodstock, Vt.

New England Light Brahma Club—Pres., Philander Williams, Taunton, Mass.; Sec.-Treas., G. W. Cromack, Stoneham, Mass.

American Exhibition Game and Game Bantam Club—Pres., Robt. D. Winthrop, 3 Broad St., N. Y.; Sec.-Treas., S. Ward Doubleday, 44 Wall St., N. Y.

American White Wonder Club—Pres., H. W. Heath, Piermont, N. H.; Sec.-Treas., A. P. Roscoe, New Haven, Vt.

Indian Game Club of America—Pres., A. W. Bowman, Salem, Va.; Sec.-

Treas., Adam Thompson, Amity, Mo.
National Bantam Association—Pres., Philander Williams, Taunton, Mass.; Treas., A. A. Parker, Dunellen, N. J.; Sec., E. Latham, Flatbush, L. I., N. Y.
American Cochín Bantam Club—Sec.-Treas., Henry S. Ball, Shrewsbury, Mass.

National Bronze Turkey Club—Pres., J. M. Rapp, La Moille, Ill.; Sec.-Treas., James Garvin, Princeton, Ill.

The Waterfowl Club of America—Pres., T. Farrer Rackham, Orange, N. J.; Sec.-Treas., J. C. Harvey, Brookdale, N. J.

American Poultry Association—Pres., David A. Nichols, Monroe, Conn.; Sec.-Treas., Theodore Sternberg, Ellsworth, Kan.

National Pet Stock Association—Pres., T. Farrer Rackham, East Orange, N. J.; Sec.-Treas., G. P. Reynaud, Mt. Vernon, N. Y.

California Plymouth Rock Club, Santa Rosa, Cal.

Canton Fanciers' Club, Canton, O.
Dragoon Club, Melrose, Mass.

Indian Game Club, Amity, Mo.
Jacobin Club, Lebanon, Pa.
Magpie Club, Peoria, Ill.

American Bantam Club, Flatbush, L. I., N. Y.

American Barb and Carrier Club, Reading, Pa.

American Black Leghorn Club, Colorado Springs, Col.

American Black Minorca Club, Syracuse, N. Y.

American Fantail Club, Nashville, Tenn.

American Owl Club, Mattapan, Mass.

American Wyandotte Club, Crawford, N. J.

Agricultural Organizations.

Association of American Agricultural Colleges and Experiment Stations.—M. A. Scovell, Lexington, Ky., Secretary.

Arkansas Valley Alfalfa Association—J. A. Lockhart, Sec., Fowler, Col.

American Sugar Growers' Society—Sec., B. W. Snow, Marquette B'ldg Chicago, Ill.

Association of Official Agricultural Chemists—Dr H. W. Wiley, Washington, D. C., Secretary.

Association of Fertilizer Manufacturers—H. B. Hinckman, Urbana, O., Secretary.

Farmers' Protective Tariff League of Penn.—Sec., Hon. John H. Landis, Millerville, Pa.

Farmers' National Congress—John M. Stahl, Chicago, Ill., Secretary.

United States Bee Keepers' Union—Sec., A. B. Mason, Toledo, O.

The dull farmer keeps dull tools.

Agricultural Organizations.—Continued.

Indiana Bee Keepers' Association—
Indianapolis, E. S. Pope, Sec.
Ontario Bee Keepers' Association—
S. Cornell, Lindsay, Ont., Sec.
Wisconsin Bee Keepers' Association—
H. Lathrop, Browntown, Sec.
Indiana Poultry Breed Association—
W. H. Frye, Indianapolis, Sec.
National Live Stock Exhibit Association,
G. Howard Davison, Millbrook, N. Y., Sec.
Vermont Maple Sugar Makers' Association—
A. J. Croft, Enosburgh, Vt., Sec.
Wisconsin Forestry Association—
S. S. Cheney, Madison, Sec.
American Kennel Club—A. P. Vredenburg, Sec., 55 Liberty St., N. Y.
Canadian Kennel Club—H. B. Donovan, Sec., 124 Victoria St., Toronto, Can.
New England Tobacco Growers' Association—Sec.-Treas., S. C. Hardin, Glastonbury, Conn.

State Commissioners of Agriculture, Secretaries of State Boards of Agriculture, and State Agricultural Societies.

Alabama—H. D. Lane, Montgomery, Commissioner.
Arkansas—W. G. Vincenheller, Little Rock, Commissioner.
California—Edwin F. Smith, Sacramento, Secretary Agricultural Society.
Colorado—Daniel F. Working, Fort Collins, Secretary Agricultural Society.
Connecticut—T. S. Gold, West Cornwall, Secretary Board of Agriculture.
Florida—L. B. Wombwell, Tallahassee, Commissioner.
Georgia—R. T. Nesbitt, Atlanta, Commissioner.
Illinois—W. C. Garrard, Springfield, Secretary Board of Agriculture.
Indiana—Chas. F. Kennedy, Indianapolis, Secretary Board of Agriculture.
Iowa—P. F. Fowler, Des Moines, Secretary Agricultural Society.
Kansas—F. D. Coburn, Topeka, Secretary Board of Agriculture.
Kentucky—N. McDowell, Frankfort, Commissioner.
Louisiana—E. L. Woodside, Baton Rouge, Secretary Agricultural Society; H. C. Newson, Baton Rouge, Commissioner of Agriculture.
Maine—B. W. McKeen, Augusta, Secretary Board of Agriculture; G. M. Twitchell, Augusta, Secretary Agricultural Society.
Massachusetts—W. R. Sessions, Boston, Secretary Board of Agriculture.
Michigan—Ira K. Butterfield, Agricultural College, Secretary Board of Agriculture.
Minnesota—E. W. Randall, Hamline, Secretary Agricultural Society.

Mississippi—Geo. W. Carlisle, Jackson, Commissioner.
Missouri—J. R. Rippey, Columbia, Secretary Board of Agriculture.
Nebraska—R. W. Furnas, Brownville, Secretary Agricultural Society.
New Hampshire—N. J. Batchelder, Concord, Secretary Board of Agriculture.
New Jersey—Franklin Dye, Trenton, Secretary Board of Agriculture.
New York—Charles F. Wieting, Albany, Commissioner; James D. Docharty, Albany, Secretary Agricultural Society.
North Carolina—Jno. Robinson, Raleigh, Commissioner.
North Dakota—D. L. Laughlin, Lisbon, Commissioner.
Ohio—W. W. Miller, Columbus, Secretary Board of Agriculture.
Pennsylvania—Thos. J. Edge, Harrisburg, Secretary of Agriculture.
Rhode Island—Geo. A. Stockwell, Providence, Secretary Board of Agriculture.
South Carolina—A. P. Butler, Columbia, Commissioner.
South Dakota—M. H. Kelley, Aberdeen, Secretary Board of Agriculture.
Tennessee—T. K. P. Allison, Nashville, Commissioner.
Texas—Jno. E. Hollingsworth, Austin, Commissioner.
Vermont—C. M. Winslow, Brandon, Secretary Board of Agriculture.
Virginia—Thos. Whitehead, Richmond, Commissioner.
West Virginia—C. C. Brown.
Wisconsin—T. J. Fleming, Madison, Secretary Agricultural Society.

State Dairymen's Associations,

with date of organization, date of last meeting and address of secretary.

Alabama Dairymen's Association. Organized 1895.—Sec., F. H. Bates, Hamburg. An. meeting, Birmingham, Dec. 16, 1896.

California Dairy Association. Org. 1893.—Sec., Sam'l E. Watson, 113 Davis street, San Francisco. An. meeting San Francisco, Sept. 29-30, 1896.

Dairymen's Association of Southern California. Org. 1894.—Sec., James R. Boal, Box 686, Los Angeles. Quarterly meeting, Los Angeles, Apr., 1897.

Colorado State Dairymen's Association. Org. 1893.—Sec., A. M. Hunter, office of State Dairy Commissioner, Denver. An. meeting, Denver, Jan. 23, 1897.

Connecticut Dairymen's Association. Org. 1882.—Sec., F. H. Stadtmueller, Elmwood. An. meeting, Hartford, Jan. 19-21, 1897.

Connecticut Creamery Association.

* A short road to wealth usually turns out the longest way there.

Agricultural Organizations.—Continued.

Org. 1890.—Sec., Frank Avery, Wapping. An meeting, Jan. 19-21, '97.

Georgia Dairyemen's Association. Org. 1894.—Sec., M. L. Duggan, Sparta. An. meeting, Macon, Aug. 19-20, 1896.

Illinois State Dairyemen's Association. Org. 1874.—Sec., John H. Monrad, Winnetka. An. meeting, DeKalb, Feb. 24-26, 1897.

Illinois Southern Dairy Union. Org. 1894.—Sec., R. J. Craig, Swanwick. An. meeting, Sparta, Dec. 17, 1896.

Chicago Milk Shippers' and Producers' Union. Org. 1897.—Sec., S. Hill, Briggs House, Chicago.

Indiana State Dairy Association. Org. 1891.—Sec., H. C. Beckman, Brunswick. An. meeting, Lebanon, Dec. 29, 30, 1896.

Iowa State Dairy Association. Org. 1876.—Sec., J. C. Daly, Charles City. An. meeting, Marshalltown, Nov. 18-20, 1896.

Kansas State Dairy Association. Org. 1887.—Sec., J. K. Forney, Abilene. An. meeting, Abilene.

Maine.—(Note—The State Board of Agriculture has charge of the dairy interest of Maine, there being no special organization of dairymen.)—Sec., B. W. McKeen, Augusta.

Massachusetts Creamery Association. Org. 1895.—Sec. A. W. Morse, Belcher-town. An. meeting, Northampton, Feb. 10, 1897.

Michigan Dairyemen's Association. Org. 1885.—Sec., S. J. Wilson, Flint. Annual meeting, Charlotte, Feb. 2-4, 1897.

Michigan Cheese Manufacturers' Association. Corres. Sec., George B. Horton, Fruit Ridge.

Minnesota State Dairyemen's Association. Org. 1878.—Sec., T. L. Haecker, St Anthony Park. An. meeting, Albert Lea, Dec. 15-17, 1896.

Minnesota State Butter and Cheese Makers' Association. Org. 1894.—Sec., John A. Trumbull, Wells. An. meeting, Albert Lea, Dec. 15-17, 1896.

Missouri State Dairyemen's Association. Org. 1891.—Sec., Levi Chubbuck, 2008 Pine street, St. Louis. An. meeting, Cameron, Nov. 23-25, 1896.

Nebraska Dairyemen's Association. Org. 1885. Sec., S. C. Bassett, Gibbon. An. meeting, Lincoln, Dec. 15-17, 1896.

Granite State Dairyemen's Association. Org. 1884.—Sec., J. L. Gerrish, Contoocook. An. meeting, Wolfboro, Dec. 10, 1896.

New Jersey Dairyemen's Auxilliary Association. Org. 1895.—Sec., J. Anson, McBride, Unionville. An. meeting, Trenton, Dec. 8, 1896.

New York State Dairyemen's Association. Org. 1877.—Sec., B. D. Gilbert,

Clayville. An. meeting, Delhi, Dec. 8-10, 1896.

Milk Farmers' Protective Association. Org. — Corres. Sec., George M. Roe, Chester, Orange County, N. Y. North Carolina State Dairyemen's Association. Org. 1894.—Acting Sec., F. E. Emery, Raleigh. An. meeting, Raleigh, Oct. 21, 1896.

North Dakota State Dairyemen's Association. Org. 1891.—Sec., E. E. Kaufman, Fargo. An. meeting, Lisbon, Feb. 13, 14, 1896.

Ohio State Dairy Association. Org. 1894.—Sec., L. P. Bailey, Tacoma. An. meeting, Columbus, January 13, 1897.

Ohio Cheese Manufacturers' Association. Org. 1895.—Sec., C. F. Phillips, Chagrin Falls. An. meeting, Cleveland, Dec. 1896.

Oregon Dairyemen's Association. Org. 1892.—Sec., F. L. Kent, Corvallis.

Pennsylvania State Dairyemen's Association. Org. 1875.—Sec., J. C. McClintock, Meadville. An. meeting, Meadville, Jan. 27-29, 1897.

South Dakota Dairy Association. Org. 1889.—Sec., W. F. T. Bushnell, Aberdeen. An. meeting, Aberdeen, Oct., 1896.

East Tennessee Dairy Association. Org. 1895.—Sec., Paul F. Kefauver, Madisonville.

Utah Dairyemen's Association. Org. 1894.—Sec., F. B. Linfield, Logan. An. meeting Salt Lake City, Feb. 27, 1897.

Vermont Dairyemen's Association. Org. 1869.—Sec., F. S. Collins, Burlington. An. meeting, Montpelier, Jan. 5-7, 1897.

Washington State Dairyemen's Association. Org. 1894.—Sec., J. Woll, Stanwood.

Wisconsin Dairyemen's Association. Org. 1872.—Pres., Geo. W. Burchard, Fort Atkinson; Sec., David W. Curtis, Fort Atkinson. An. meeting, Edgerton, Feb. 10-12, 1897.

Wisconsin Cheese Makers' Association. Org. 1893.—Pres., J. K. Powell, New Lisbon; Sec., U. S. Baer, New Lisbon. An. meeting, Madison, Feb. 17, 18, 1897.

Note.—Seven of these State associations are incorporated and ten of them receive annual appropriations from their respective States, ranging from \$500 to \$5000. These allowances are used to defray the expenses of annual conventions and to publish the reports of proceedings. In other States such proceedings are published in connection with annual reports of the boards and departments of agriculture.

Several of the older organizations have published annual reports, and sets of these, which it is very difficult to now obtain, embrace much dairy

Agricultural Organizations.—Continued.

information of a valuable and practical character. The same is true of the annual reports of the American Dairy-men's Association (1866-80) and the Northwestern Dairy-men's Association (1867-83); both of these organizations were disbanded because their field of operations had become occupied by the younger associations in the several States.

National Dairy Associations.

National Dairy Union—Organized 1894. Pres., W. D. Hoard, Fort Atkinson, Wis.; Sec., Charles Y. Knight, Chicago, Ill. Annual meeting, Chicago, Ill., Feb. 13, 1897.

National Creamery Buttermakers' Association—Organized 1891. Pres., Irwin Paul, Springfield, Ia.; Sec., J. E. Nissley, Topeka, Kan. Annual meeting, Owatonna, Minn., Feb. 15-20, 1897.

New England Milk Producers' Union. Org. 1886.—Pres., Charles A. Gleason, New Braintree, Mass.; Sec., Geo. M. Whitaker, P. O. Box 1332, Boston, Mass. An. meeting, Boston, Mass., Jan. 15, 1897.

State Dairy Officials.

Corrected to April, 10, 1897, by the U. S. dairy division.

California—Wm. Vanderbilt, 113 Davis street, San Francisco, Secretary and Agent, State Dairy Bureau.

Colorado—H. B. Cannon, Denver, State Dairy Commissioner.

Connecticut—John B. Noble, Hartford, Dairy Commissioner.

Iowa—W. K. Boardman, Des Moines, State Dairy Commissioner.

Massachusetts—Wm. R. Sessions, Boston, Executive Officer, State Dairy Bureau (of Mass. State Board of Agriculture).

Michigan—Edwig. C. Reid, Allegan. Commissioner, State Dairy and Food Commission.

Minnesota—Berndt Anderson, St. Paul, Commissioner, State Dairy and Food Commission.

New Jersey—Geo. W. McGuire, Trenton, Dairy Commissioner.

New York—Charles A. Wieting, Albany, State Commissioner of Agriculture (including Dairy); Assistant Commissioner, Geo. L. Flanders, Albany; Assistant Commissioner, F. H. Kracke, New York City.

North Dakota—H. N. Thomas, Bismarck, State Commissioner of Agriculture and ex-officio State Dairy Commissioner.

Ohio—Joseph E. Blackburn, Columbus, Dairy and Food Commissioner.

Oregon—H. B. Luce, Portland, State Dairy and Food Commissioner.

Pennsylvania—Levi Wells, Harrisburg, Dairy and Food Commissioner (of State Department of Agriculture).

Washington—E. A. McDonald, Tacoma, State Dairy Commissioner.

Wisconsin—H. C. Adams, Madison, Dairy and Food Commissioner.

Dairy Officials—Canada.

For the Dominion of Canada—Prof. James W. Robertson, Ottawa, Can., Agricultural and Dairy Commissioner, Department of Agriculture: Assistants and members of staff, S. C. Chapais, St Denis, Quebec, assistant Dairy Commissioner; Thomas J. Dillon, Charlottetown, Prince Edward Island, Superintendent of Dairying. J. E. Hopkins, Nappan Station, Nova Scotia, Superintendent of Dairying.

Note.—In addition to these there are experts in the Dominion Dairying Service employed as traveling instructors during certain seasons of the year.

For Provincial Governments.—Prof. H. H. Dean, Guelph, Ont., Dairy Department Ontario Agricultural College; J. A. Ruddick, Kingston, Ont., Superintendent of Dairy School; F. J. Sleightholm, Strathroy, Ont., Superintendent of Dairy School; John Robertson, Fredericton, N. B., Superintendent of Dairying; C. C. Macdonald, Winnipeg, Man., Superintendent of Dairying.

Provincial Dairy Associations—(1) The Butter and Cheese Makers' Association of Western Ontario. Sec., George Hatley, Brantford, Ont.

(2) The Butter and Cheese Makers' Association of Eastern Ontario. Sec., R. G. Murphy, Elgin, Ont.

(3) The Ontario Creameries' Association. Sec., R. J. Graham, Belleville, Ont.

(4) The Dairy-men's Association of the Province of Quebec. Sec., E. Castel, St Hyacinthe, P. Q.

(5) The Farmers' and Dairy-men's Association of New Brunswick. Sec., W. W. Hubbard, Sussex, New Brunswick.

(6) The Farmers' and Dairy-men's Association of Nova Scotia. Sec., Paul C. Black, Falmouth, N. S.

(7) The Dairy-men's Association of Prince Edward Island. Sec., Mr McInnis, St Peters Bay, P. E. I.

(8) The Dairy-men's Association of Manitoba. Sec., Miss E. Cora Hind, Winnipeg, Man.

(9) The Dairy-men's Association of the Northwest Territories. Sec., J. W. Jowett, Regina, Northwest Territories.

District of Bedford Dairy Associa-

Agricultural Organizations.—Continued.

tion—Sec., Stephen Baker, Cowansville, P. Q.
District of Huntingdon Dairymen's Association. Sec., W. H. Walker, Huntingdon, P. Q.

Secretaries of State Horticultural Societies.

Arkansas—Henry Strother, Fort Smith.

California—B. M. DeLong, Secretary State Board of Horticulture, San Francisco, 220 Sutton St.; W. J. Wickson, 414 Day St., San Francisco, Secretary State Horticultural Society.

Colorado—State Bureau of Horticulture, Martha A. Shute, Denver.

Florida—W. S. Hart, Hawks Park.

Georgia—G. H. Miller, Rome.

Idaho—Robt Milliken, Nampa.

Illinois—H. M. Dunlap, Savoy; Dwight Herrick, Rochelle, Sec.

Northern Illinois Horticultural Society.

Southern Illinois Horticultural Society, Sec., E. G. Mendenhall, Kinmundy.

Hudson River Valley Horticultural Association, Sec Edw. Van Alstyne, Kinderhook, N. Y.

Indiana—W. H. Regan, Greencastle; Prof J. Troop, Lafayette, Secretary Indiana Horticultural Association.

Iowa—Geo. Van Houten, Des Moines; C. M. Burton, Cedar Rapids, Secretary Southeastern Iowa Horticultural Society; W. B. Chapman, Correctionville, Secretary Northwestern Iowa Horticultural Society.

Kansas—W. H. Barnes, Topeka.

Kentucky—J. C. Hawes, Ferncreek.

Massachusetts—Robert Manning, Boston.

Maine—D. K. Knowlton, Farmington.

Minnesota—A. W. Latham, Excelsior.

Michigan—Edwig. C. Reid, Allegan.

Missouri—L. A. Goodman, Westport.

Nebraska—C. A. Barnard, Table Rock.

New Jersey—H. I. Budd, Mount Holly.

North Carolina—I. W. McCarthy, Raleigh.

Ohio—W. W. Farnsworth, Waterville.

Oregon—E. R. Lake, Portland, Secretary State Board of Horticulture; John Minto, Portland.

Pennsylvania—W. B. Brinton, Christiana.

South Dakota—E. D. Cowles, Vermillion.

Wisconsin—B. S. Hoxie, Evansville.

Western New York—John Hall, Rochester.

Washington—C. A. Tonneson, Tacoma.

West Virginia—F. W. McRane, Morgantown.

Canada.

Abbotsford Fruit Growers' Association, A. N. Fiske, Abbotsford, P. Q.; Montreal Horticultural Society, Henry S. Evans, Montreal.

Ontario Fruit Growers' Association. L. Woolverton, Grimsby.

State Veterinarians and Live Stock Commissioners.

Connecticut—Commissioners of Diseases of Domestic Animals, E. H. Hyde, Stafford; T. S. Gold, West Cornwall; W. G. French, Watertown.

Illinois—Dr M. R. Trumbower, Springfield, Ill., State Veterinarian; A. M. Browlee, Springfield, Ill., secretary State Board of Live Stock Commissioners.

Iowa—Dr. M. Stalker, Des Moines, State Veterinarian.

Maine—Dr Geo. H. Bailey, Westbrook Junction, Dering.

Massachusetts—Cattle Commissioners, Austin Peters, chairman of State Board of Agriculture.

Michigan—Dr E. A. A. Grange, Lansing, State Veterinarian; J. J. Woodman, Paw Paw, Sec. Michigan Live Stock Commission.

Minnesota—C. N. Hewett, Red Wing, Sec. State Board of Health.

Missouri—Dr T. J. Turner, Columbia, State Veterinarian.

Ohio—Dr T. P. Shields, Watkins; Mr W. L. Miller, Chillicothe; Dr D. N. Kinsman, Columbus, Live Stock Commissioners.

Pennsylvania—Dr Leonard Pierson, Harrisburg, Veterinary Surgeon to Department of Agriculture.

South Carolina—Dr W. B. Niles, Columbia, State Veterinarian.

Vermont—State Board of Agriculture, ex-officio, State Cattle Commission.

Wisconsin—Dr J. L. Scott, Beaver Dam, State Veterinarian.

Patrons of Industry.

Supreme Officers.

President, W. S. Donnelly, Ketchums Corners, New York.

Vice President, J. W. Elsea, Adamsville, O.

Sec. and Treas., Geo. A. Bennett, Marengo, Ill.

Chairman Board of Trustees.

P. S. Dorland, Deans Corners, New York.

Incorporated in 1887.

The organization was founded in 1885 in Michigan. It has associations in Pennsylvania, Ohio, West Virginia, Indiana, Michigan, Illinois, Wisconsin, Iowa, North and South Dakota. Min-

Agricultural Organizations.—Continued.

nesota and New York; also in Canada. New York is the banner state. The order is non-partisan, but not non-political. The methods of co-operative trade employed are the contract system, where goods are sold to members of the order under contract at a certain per cent above cost; the rebate coupon system, and the Arlington system, where the members take shares in a co-operative store.

Miscellaneous.

Union Growers' Association of New York—Pres., LeGrand Colton, Canistota; Sec., F. H. Ebeling, Syracuse.

American Cranberry Growers' Association—Sec., A. J. Rider, Trenton, N. J.

Utah Bee Keepers' Association—Sec., George E. Dudley, Provo.

Park Central Mint Growers' Co-operative Association—Sec., George A. Angevine, Mendon, Mich.

National Apple Shippers' Association—Object: "To protect the general welfare and to elevate the standard of the trade." Pres., E. P. Loomis, New York city; vice president, George C. Richardson, Leavenworth, Kan.; Sec., A. Warren Patch, Boston, Mass.; treasurer, N. G. Richmond, St. Louis, Mo.; statistician, B. W. Snow, Chicago, Ill.

Fruit Growers' Association of Ontario—Sec., L. Woolverton, Grimsby, Ont.

Cider and Cider Vinegar Makers' Association of the Northwest—Sec., Charles C. Bell, Boonville, Mo.

More About the Patrons of Industry.

The Patrons of Industry adopted their constitution at Cleveland, Ohio, in March, 1897. The avowed object is "to secure the rights and interests of agriculturists and laborers in establishing mutual fire insurance, encouraging all efforts in co-operative buying and selling and to promote sociability, education and fraternity among its members." It is non-partisan and non-sectarian. No persons are received as members who are interested in any mercantile business as an occupation or acting as agents for the same as an occupation. The sub-associations may provide for sick benefit funds, mutual insurance, co-operative trading or other projects. The Patrons of Industry claim to be the strongest farmers' and laborers' organization in the United States and Canada. There were in September, 1897, 5658 local associations with a membership of 254,362.

Michigan State Association of Farmers' Clubs.

OFFICERS.

President.—J. T. Daniels, Union House.

Vice President.—Patrick Hankard, Henrietta.

Secretary and Treasurer.—F. D. Wells, Rochester.

Directors.—C. L. Hoyt, Saline; L. H. Ives, Mason; W. H. Howlett, Dansville; C. J. Phelps, Damon; F. M. Whelen, North Newburg; A. L. Landon, Springport.

Over one hundred clubs belong. The first farmers' club in the state was organized 28 years ago. The system of local clubs grew rapidly and was very successful, having obtained by 1893 a foothold in more than half of the counties. During 1893 the movement began for a state union of the local clubs. The idea was received with general favor. Delegates met and organized the present state association, keeping free from all political entanglements. The association aims to assist the clubs in matters of state importance, but leaves local management to the clubs. The work is on parallel lines to that of the grange, but there is no element of secrecy. Questions of state economy have been taken, and the association has exerted a tremendous influence in favor of public economy. A list of questions was prepared, one for each month, and distributed to every club. There has been no attempt at co-operative buying and selling. Social and educational progress of the rural districts have also received much attention. The association has concentrated its strength upon the accomplishment of a few objects and has accordingly made rapid headway. Doing a little at a time, it has performed its work well.

National Farmers' Alliance.

President.—Edward Furnas, Nevada, Iowa.

Vice Presidents.—E. J. Bye, West Branch, Iowa; F. E. Fitch, Bellevue, Ohio; Wm. Toole, Barraboo, Wis.; T. J. Meighen, Forestville, Minn.; A. S. Brewer, Tampico, Ill.; W. A. Kelsey, Dunfee, Ind.; J. W. Arrasmith, Colfax, Wash.; T. Bedard,

Frenchtown, Mont.; J. Burrows, Lincoln, Neb.

Secretary and Treasurer.—August Post, Moulton, Iowa.

Lecturer.—George E. Lawrence, Marion, Ohio.

Objects as stated at Chicago, Dec. 1895.

Resolved, 1. We demand in our monetary system a regular and equitable distribution independent of selfish and greedy combinations, free from private manipulations,

with stability as well as flexibility, and value as well as volume. 2. We demand that taxation, State, National, or municipal, shall not be used to build up one interest at the expense of another. 3. We demand the nationalization of the means of transportation and communication to the extent that the State and Interstate commerce laws shall be made mutually co-operative and harmonious for the strict and absolute control of the same in the interest of the people; that the pooling clause of the Interstate Commerce law should be retained, as it promotes that healthy competition which tends to reduce freight charges to a minimum, while pooling sustains them at the maximum. 4. That the National Farmers' Alliance will adhere to the principles set forth in our declaration of purposes, and maintain the order as the opponent of unjust trusts and combines, and favor the education of our membership in political sentiment, in harmony with our principles controlling no political party and being controlled by none, but each individual may use his own judgment in the exercise of his right of franchise and in his choice of methods by which our demands may be secured. 5. That we recommend to the Alliance the progressive reading course for farmers, and the same be under full control of an advisory committee of the various organizations of the farmers, agricultural colleges, and experimental stations. 6. That a restricted franchise has ever been an instrument of oppression; that the right of elective franchise should be exercised without regard to sex, and there should be equal pay for equal work. 7. That the anti-option bill now pending in the United States senate should be enacted into law. 8. That we favor such strict legislation, both State and National, as will prohibit the adulteration of all food products.

The National Alliance is the general representative of the State alliances, which are organized in the States of Iowa, Nebraska, North Dakota, South Dakota, Washington, Montana, Missouri, Minnesota, Wisconsin, Illinois, Indiana, Ohio, Pennsylvania, and New York.

National Farmers' Alliance and Industrial Union.

President.—Mann Page, Brandon, Va.
Vice President.—C. Vincent, Indianapolis, Ind.
Secretary and Treasurer.—W. P. Bricker, Cogan Station, Pa.
Lecturers.—J. P. Sossamon, Charlotte, N. C.; Hamlin V. Poore, Bird Island, Minn; F.

H. Peirsol, Parkersburg, W. Va.
National Executive Committee.—Mann Page, Chairman, Brandon, Va.; A. B. Welch, Secretary, Victor, N. Y.; John Breinig, Junction, W. Va.; W. A. Gardner, Andrew's Settlement, Pa.

PLATFORM.

We demand a National currency, safe, sound, and flexible, issued by the General Government only; a full legal tender for all debts and receivable for all dues, and an equitable and efficient means of distribution of this currency, directly to the people, at the minimum of expense and without the intervention of banking corporations, and in sufficient volume to transact the business of the country on a cash basis. (a) We demand the free and unlimited coinage of silver and gold at the legal ratio of 16 to 1. (b) We demand a graduated income tax. (c) That our National legislation shall be so framed in the future as not to build up one industry at the expense of another. (d) We believe that the money of the country should be kept as much as possible in the hands of the people, and hence we demand that all National and State revenues shall be limited to the necessary expenses of the Government economically and honestly administered. (e) We demand that postal savings banks be established by the Government for the safe deposits of the savings of the people, and to facilitate exchange. (f) We are unalterably opposed to the issue by the United States of interest-bearing bonds, and demand the payment of all coin obligations of the United States, as provided by existing laws, in either gold or silver coin, at the option of the Government and not at the option of the creditor.

The Government shall purchase or construct and operate a sufficient mileage of railroads to effectually control all rates of transportation on a just and equitable basis. The telegraph and telephone, like the postoffice system, being a necessity for the transmission of intelligence, should be owned and operated by the Government in the interest of the people. We demand that no land shall be held by corporations for speculative purposes or by railroads in excess of their needs as carriers, and all lands now owned by aliens should be reclaimed by the Government and held for actual settlers only.

We demand the election of United States Senators by a direct vote of the people. That each State shall be divided into two districts of nearly equal voting population, and that a Senator from each shall be elected by the people of the district.

Relying upon the good, common sense of the American people, and believing that a majority of them, when uninfluenced by party prejudice, will vote right on all questions submitted to them on their merits, and further to effectually annihilate the pernicious lobby in legislation, we demand direct legislation by means of the initiative and referendum.

You cannot long cheat the farm.

The Union is in active operation in all the Southern and Western states (except Ohio and Wyoming), and in New York, New Jersey and Pennsylvania.

Sec. Wm. P. Bricker has prepared the following statement in regard to the scope of the organization:

While at one time it was thought that the Farmers' Alliance and Industrial Union was a partisan organization, and the election of a number of its members in the various states to positions of honor and trust gave color to that belief, such is not, or never has been, the case.

We have our state exchanges, through which members do their buying and selling, saving the profits of the middlemen at both ends of the line. Many of the states have their Fire Insurances. Confined to members in good standing. Policies are perpetual, and conducted upon the co-operative plan, and at cost. They have proved a success, where honestly and carefully managed, and are cheaper than local farmers' mutuals, as well as those of other farmers' organizations. We have our own national beneficiary degree, through which members may carry life and accident policies, also receive weekly sick benefits. Reports from all sections of the union show a healthy condition and prospects are very favorable for a healthy growth during 1898.

An Actual Account of Farm Profits.

A simple plan for keeping farm accounts was described in the New England Homestead of March 10, 1883. Prizes were offered for the best six accounts to be kept throughout the year. Eighty-nine farmers joined in the contest, beginning their accounts April 1, 1883. Forty-two complete accounts for the year ended April 1, 1884, were returned. Out of these 42 actual accounts, 36 showed profits on the capital invested above all expenses (including labor) of one-half of 1 per cent. to over 40 per cent. The average of the 36 different farm accounts that show a gain indicates an average profit of ten per cent. on a total capital of \$160,000. Six accounts show a loss of from one-quarter of 1 per cent. to 12 per cent.; the average on the six accounts is 6 per cent. on a total capital of \$22,500. The average for the whole 42 accounts is a net profit of 8 per cent. on an invested capital of \$182,500. This is the profit left after paying all farm expenses, including both hired help and the work and board of the proprietors. It should be noted that the losses shown in the six accounts were ascribed almost wholly to the unprecedented drouth of the season following upon a similar disaster the previous year.

How the accounts were kept.—An inventory of the farm was taken April 1, 1883. It included all the real estate and buildings used for farming purposes. The lawn, flower garden, dwelling house, etc, were not included, as they are not a part of the farmer's business any more than the merchant's house is a part of his business. If any part of the house was used for farm purposes, the farm had to pay for such use. The inventory also included all animals, implements, etc, used exclusively for farm purposes. Also all crops, manure and cash on hand. In keeping the account, the expenses include all charges for labor, board, taxes, seeds, manure, tools, and any other incidentals purchased for the farm. Articles obtained for family use solely were not charged, as they were not connected with the farm. The receipts included the credits for all farm products disposed of, whether sold in market or consumed in the family. The farm was also credited with the money earned off the farm by the men or teams, paid by the farm. Another inventory was taken in April, 1884, including all the items of real and personal estate mentioned in the first inventory, to which the improvement or decrease in the value of the farm was added, if sufficiently noticeable to be justly assessed. To this was added the total income of all the items of credits. From this was deducted the sum of the total expenditures and the total of the first inventory. The balance showed the gain or loss. By dividing this balance by the original capital, the rate per cent. of gain or loss was obtained.

Better grub than grumble.

Patrons of Husbandry.

This national organization, or grange, as its various lodges are called, has a state organization in 27 states, and was composed of delegates representing live granges and memberships as per table herewith, at its 31st annual session held at Harrisburg, Pa., November, 1897. Organized in 1866, the zenith of power was reached during the years 1873 and '74. From '74, for a time, a decline set in, but since 1880 steady progress has been made, both in the work of organization and results accomplished. The grange is valued for the social and educational good its members receive. In some sections, co-operative buying saves large sums of money to the memberships annually. The grange has secured numerous national and state laws of far-reaching, beneficial effect to farmers, and as the organization increases in membership, greater prestige and power will be used for the securing of more perfect justice and equity for the farmer, in such public matters as taxation, transportation and anti-trust laws. The grange is a secret order—secret so far only as it is necessary to properly conduct its business—charges \$3 for men and \$1 for women, as an initiation fee, and requires the payment of a small sum as monthly dues. At least 13 farmers are necessary to organize a grange, of whom four must be women. Aaron Jones of South Bend, Ind., is master, and John Trimble of 514 F St., Washington, D. C., secretary.

State.	Master.	Address.	Charters issued.	Live granges.	Membersh- ship.
Cal.	W. W. Græer,	Sacramento,	305	42	1,500
Col.	J. A. Newcomb,	Golden,	135	16	500
Conn.	S. O. Bowen,	Eastford,	150	118	9,800
Del.	S. H. Messick,	Bridgeville,	38	26	700
Ill.	Oliver Wilson,	Magnolia,	1,720	150	4,000
Ind.	Aaron Jones,	South Bend,	2,086	60	1,900
Ia.	A. B. Judson,	Silver City,	2,018	30	500
Kan.	Henry Rhodes,	Gardner,	1,431	39	1,800
Me.	Edward Wiggin,	Maysville,	338	231	20,500
Md.	H. O. Devries,	Mariottsville,	181	15	500
Mass.	E. D. Howe,	Marlboro,	217	146	13,000
Mich.	G. B. Horton,	Fruit Ridge,	730		8,600
Minn.	Sarah G. Baird,	Edina Mills,	579	29	500
Miss.	S. L. Wilson,	Okolona,	686	22	400
Mo.	D. N. Thompson,	Butler,	2,085	25	800
N. H.	N. J. Batchelder,	East Andover,	258	232	19,000
N. J.	J. T. Cox,	Readington,	121	58	2,800
N. Y.	O. H. Hale,	N. Stockholm,	834	650	30,000
Ohio.	S. H. Ellis,	Springboro,	1,472	400	18,500
Ore.	W. M. Hilleary,	Turner,	282	58	2,000
Pa.	L. Rhone,	Center Hall,	1,168	575	20,000
R. I.	J. A. Tillinghast,	Summit,	33	26	1,700
S. C.	W. K. Thompson,	Liberty Hill,	425	19	350
Vt.	C. J. Bell,	Hardwick,	252	60	2,700
Wash.	A. High,	Vancouver,	111	24	500
W. Va.	T. C. Atkeson,	Buffalo,	397	24	500
Wis.	H. E. Huxley,	Neenah,	547	30	700

Ounces Reduced to Decimals of a Pound.

1 oz. = .06 lb	5 oz. = .31 lb	9 oz. = .56 lb	13 oz. = .81 lb
2 " = .13 "	6 " = .38 "	10 " = .63 "	14 " = .88 "
3 " = .19 "	7 " = .43 "	11 " = .69 "	15 " = .94 "
4 " = .25 "	8 " = .50 "	12 " = .75 "	16 " = 1.00 "

Cheese and salt meat sparingly eat.

Standard Agricultural Terms.

Common words of different meanings, or used to express different meanings in agricultural matters, occasion so much confusion that the association of agricultural colleges and experiment stations recommend the uniform use of the following terms:

FIELD CROPS.

Maize (*Zea Mays*).—Used when speaking of the plant in general.

Indian corn.—The grain of maize.

Corn forage.—The maize plant when fed without the removal of the ear.

Corn stover.—The maize plant after the ear has been removed.

Silo.—The maize plant after the ear has been removed.

Silo.—A structure in which green forage is preserved.

Silage.—Green forage preserved in a silo.

Siloing.—The process of preserving green forage in a silo.

Cultivation.—Stirring the soil by means of a cultivator.

Culture.—Refers to all methods by which a crop is improved or produced.

Tillage.—Stirring the soil by means of any implement for the purpose of growing a crop.

BREEDS AND BREEDING.

Pure bred—(Not thoroughbred or full-blood). Refers to the progeny of the members of a class of animals having like characteristics which are uniformly transmitted.

Grade.—An animal descending from common stock, but having more or less of the blood of some pure breed.

Cross or cross-bred animal.—The direct cross of two pure-bred animals of different breeds.

Reversion (Not atavism, throwing back, or breeding back).—The process by which qualities are inherited from grandparents or more remote ancestors

Rules for Naming Kitchen Garden Vegetables.

As adopted by the committee on nomenclature of the association of American Agricultural Colleges and Experiment Stations:

1. The name of a variety shall consist of a single word, or at most of two words. A phrase, descriptive or otherwise, is never allowable; as, *Pride of Italy*, *King of Mammoths*, *Earliest of All*.

2. The name should not be superlative or bombastic. In particular, such epithets as *New*, *Large*, *Giant*, *Fine*, *Selected*, *Improved* and the like, should be omitted. If the grower or dealer has a superior stock of a variety, the fact should be stated in the description immediately after the name, rather than as a part of the name itself; as, "*Trophy*, selected stock."

3. If a grower or dealer has secured a new select strain of a well-known variety, it shall be for him to use his own name in connection with the established variety; as *Smith's Winnigstadt*, *Jones's Cardinal*.

4. When personal names are given to varieties, titles should be omitted; as *Major*, *General*, etc.

5. The term *hybrid* should not be used except in those rare instances in which the variety is known to be of hybrid origin.

6. The originator has the prior right to name the variety, but the oldest name which conforms to these rules should be adopted.

7. This committee reserves the right, in its own publications, to revise objectionable names in conformity with these rules.

COMMERCIAL AGRICULTURE.

MARKETS AND MARKETING.

Conditions Fully Portrayed.

He is a poor farmer, indeed, who does not know how to produce a crop of grain, or fatten a carload of beef steers, or so care for his dairy herd that the milk product will be sweet, wholesome and ready for the creamery; he is a poor market gardener who cannot turn off a sound lot of potatoes, or celery or onions; the fruit grower has missed his calling who cannot make his vines yield liberal quantities of attractive berries, or who does not understand the practical use of insecticides and fungicides. But no particular discredit must be attached to one engaged in any branch of agriculture who is not fully posted on all the ins and outs of marketing farm produce. In these days of sharp competition, it is of prime importance that the agriculturist should not only know how to raise a crop, but should know how to dispose of it so as to get the most profit as a result of money and labor invested. It is not our purpose to speak here of the gain secured through converting grain and hay crops into beef, pork and mutton, or milk into dairy products, etc.; rather to portray the various methods of handling and marketing farm products in the raw or original state.

The Merit of Various Modes of Selling.

Among the simplest methods of marketing farm produce is peddling it direct from wagons to the doors of consumers in villages, towns and cities. While this method is one much employed by small farmers, gardeners and fruit growers, it can at times be profitably followed on a scale of considerable magnitude if the business is carefully and thoroughly developed, even though from a small beginning. Innumerable families in all of our centers of population who are entirely dependent upon purchases for food supplies, are more than willing to secure an important part direct from producers. They demand strictly fresh and sound produce, however, and for such are usually willing to pay full market rates. In many instances families will be willing to pay a little more for something especially nice, rather than buy a product a little less desirable at the store even at a lower figure. This suggests that, first and foremost, whatever is offered to consumers direct from the farmer's wagon must be first-class in every respect, attractive in appearance and sound and sweet in quality. A mistake often made is, presuming that the average housekeeper will pay a big bonus to get fresh country stock. She is willing to pay a full price, but that is all; in securing this the producer, as a rule, should be satisfied, because he saves all the middlemen's charges and it is usually a quick trade with immediate and profitable returns. A second method of disposing of farm produce is to sell to a local grocer or market man. This has some advantages, but like the first named can as a rule be carried on only in a limited way. Not infrequently the local retailer with an established family trade can handle the product of the small farmer and gardener to mutual advantage.

In producing on a larger scale, the farmer can sell his grain, live

stock, wool, poultry, eggs, fruits, vegetables, etc., direct to local buyer, who in turn has his established outlet at distant large points of consumption and distribution, and after accumulating a carload or more from various farmers, ships as market conditions warrant. A merit of this plan is the securing of a known price for the goods without per-adventure of loss through dishonest consignee or the annoyance and expense of express, freight or commission charges. And a positive drawback is the fact that this local middleman must take out a considerable profit to himself in order to stand shrinkage in his net returns through decline of market between the time of buying from the producer and selling at the distant city; deterioration or loss of the produce while in transit, etc. Therefore, whether a local buyer takes your grain, live hogs, poultry or potatoes, it is reasonable to presume that he is getting a fairly large slice of the middleman's profits. A fourth method of selling produce is shipping to customers, at distant points, previously secured, perhaps through working up a trade from small beginnings. In many instances this is a favorite and successful method, especially where the farmer has taken pains to establish a reputation for fine quality goods and honest pack and count.

Wide Field of the Commission Merchant.

The fifth method through which farm produce is sold is the commission merchant, who handles by far the greater part of the farmer's surplus. This is true of perishable products, such as fruits and vegetables, and perhaps less so of poultry, eggs and hay. As for grain, live stock, etc., while they are frequently sold by the farmer direct to country buyers, they subsequently pass through the hands of commission merchants in the big cities before being finally distributed in the various channels of trade. The tendency in this age is to eliminate, so far as possible, the toll exacted by the middleman. But the day has not yet come when the commission merchant is unnecessary. As admirable and helpful as are co-operative efforts, yet in their infancy, and looking toward the economical distribution of farm produce, no very general or comprehensive plan has been evolved which will put the producers in touch with the consumer more readily than through the medium of the commission merchant. Co-operative buying and co-operative selling are successful in a small way, and there is an important future for this economy. But the farmer of to-day, in facing the practical problems of how to get the most out of his produce, is obliged to depend very largely upon commission merchants. The latter are found in the trade centers where buyers are looking for needed requirements; they understand the wants of the trade better than the single individual who is perhaps 50 or 1,000 miles distant. Through long experience and the development and evolution of business methods, the commission merchant is in a position to secure the quickest distribution of such produce as is consigned to him, getting all there is in the market for the consignor. In a large sense, he is the agent of the producer and shipper, standing for their best interests, and for his compensation in a way of commission charges endeavors to do for the countryman what the latter could not do for himself.

This great power to make or mar the profit side of the farmer's ledger only emphasizes the necessity of securing an honest commission merchant. That many are absolutely dishonest is a fact too well known to need further comment here. That many, while technically honest and ready to pay their bills, yet are tricky and more than will-

ing to engage in sharp practices with the country shipper, is also too true. The black sheep in the flock, however, cannot long hide their color and it should be the endeavor of every one having dealings with such to publish to the world these trickeries. Per contra, is the necessity of dealing with desirable commission merchants, and once secured, stick to them until there is good reason for change. A common method of tricky commission merchants, is to send out specious circular letters claiming to secure more than full market prices, usually quoting the various commodities at figures higher than anyone can possibly get. They thus secure consignments from the country, make any sort of return they wish, and if complaint is made pretend the goods were short in weight or measure, or damaged in quality, and pocket the difference, the consignor 99 times out of 100 being absolutely powerless to even trace the dishonesty, although morally certain a wicked fraud has been done.

True Understanding of Market Conditions.

The commission merchant of integrity who does the best he can for his customer finds it at times impossible to give complete satisfaction, through no fault of his own. This is particularly true with regard to perishable produce, which must be handled quickly, and where price changes are liable to be rapid and violent. Shippers are often misled through failure to fully understand true value and market quotations. While these may and should properly portray the situation when published, conditions may be entirely changed at the time the prospective shipper reads them. Quotations governing the market at a certain hour of the day may be entirely at variance with conditions six hours later. For example, early morning prices for a given commodity may rule high, owing to an apparent scarcity, but later trains may so swell the receipts as to make a positive glut on the market, forcing dealers to sell at much lower prices than those originally obtained, in order to prevent worse loss. Another feature of selling through commission merchants too often leads to misunderstandings and disappointment. The farmer who studies the market report finds peaches quoted at 50 to 75c per basket, or dressed fowls 7 to 9c per lb, or choice beef steers, \$4.50 to 5 per 100 lbs. He at once assumes his property ranks with the best, and expects that returns will show outside quotations were secured. He fails to realize that his own produce must take its place with an enormous quantity from all sections, and that what might appear strictly choice at home would grade far below that when placed by the side of the best consignments on the market on a given day, and naturally he should not expect that his goods will always command outside quotations. Requisite allowance must be made for quality, realizing that even for sound stock there are several prices obtained. This suggests the wisdom first of all of making your produce as choice as possible before offering it on the market, and, furthermore, grading it properly; do not mix inferior stuff with strictly choice, even though the latter largely predominates, because the result will be an unsatisfactory lowering of the average price. The shipment of farm produce, especially perishable goods, is always a matter of considerable uncertainty and it naturally follows that trustworthy agents be selected to do the selling, and, furthermore, that the farmer and shipper be well posted regarding market conditions.

To stop trying is the only failure.

The Selection of a Selling Agent.

Recognizing the necessity under present conditions of selling a large part of farm produce through the medium of commission merchants, due care should be exercised in the selection of the same. In cities of any considerable importance, and in many of the large towns, honorable members of this class of traders can always be found. If entirely unacquainted, your local banker may be able to furnish you some particulars about the standing of individual commission concerns; and if any of the mercantile agencies, such as Bradstreet's or Dun's, is available, much more can be learned, although none of these instrumentalities can know to a certainty whether a business house is inclined to be tricky, even though the same may have a bank account and pay its bills promptly. Some five years ago, organized effort was instituted among commission merchants of the United States to weed out irresponsible concerns, to bring the level of business integrity to a higher plane, and to right many of the wrongs incident to the commission business. This crystallized into the National league of commission merchants, which now includes a considerable number of reputable houses in almost all leading cities of the country east of the Rocky mountains. Naturally, there are many thoroughly reliable commission merchants outside of this organization, yet the latter stands for fair dealing, strict business integrity and generous treatment of those who do business with it. In this connection, we print herewith the objects of

THE NATIONAL LEAGUE OF COMMISSION MERCHANTS.

"The National league of commission merchants of the United States submits the following: Individuals or isolated communities can accomplish but limited results, therefore an organization of national extent and influence is indispensable. In this organization we propose to combine good responsible commission merchants of every large commercial center, and with the aid of growers, producers and shippers, either organized or unorganized, work together for the general welfare of the trade. A large per cent of the food products of the earth is handled on commission. The commission merchant is, and of necessity must always be, an important factor in the commerce of the world. Our organization lays its foundation on the personal integrity and financial responsibility of its individual members. The conditions of membership are exacting, but not exclusive. Reputable commission merchants, where an organization may be legally formed, are invited to join us under our constitution and by-laws. An unworthy, irresponsible commission merchant may, by misrepresentation, enter this organization, but when his unfitness or the unworthiness of any member is discovered, expulsion will surely follow. Financial soundness and honesty for the individual members, combined in a national organization of broad commercial views, must and will command the confidence and respect of the American people. To promote these ends, we invoke aid and sympathy of all commercial and agricultural organizations. The rapidity and facilities of transportation make all markets accessible, all products obtainable; the products of a single farm, dairy or garden may be distributed over and consumed in more than half the states in the union. Every grower, producer or shipper may reach the National league through his commission merchant, and have his views for the general welfare carefully considered. Farmers' clubs, fruit and vegetable

The scrub cow should not die of old age.

growers' associations, shippers of butter and other dairy products and all commercial organizations, will find us ready to unite with them in defeating unjust laws, in collecting and disseminating information, in improving business methods, in resisting discriminations and exactions, and in demanding and enforcing responsibility and integrity. We claim no section; we are non-partisan and non-sectarian. We guarantee our sympathy and support to every enterprise that may increase the rewards of labor or add to the comfort or happiness of the home."

Commission Merchants, Members National League.

Atlanta, Ga.

J. J. Barnes, 6 North Broad St.
W. R. Dimmock, 1 South Broad St.
A. Fugazzi & Co., 2 North Broad St.
S. E. Marshall, 9 South Broad St.
McCullough Bros., 10 N. Broad & 9 N. Forsyth Sts.
Rose & McDonald, 4 North Broad St.
Turner & Co., 13 North Forsyth St.
James M. Wallace, 6 North Broad St.

Baltimore, Md.

Blankfard & Meginniss, cor. Sharp & Pratt Sts.
Thomas Bond & Son, 216 Light St.
I. Cook & Sons, 7 West Pratt St.
Dix & Wilkins, 9 East Lombard St.
T. H. Evans & Co., 214 Light St. Wharf.
T. H. Kepner & Co., 109 S. Calvert St.
G. M. Lamb & Bro., 301 Exchange Place.
Wm. A. Shutz & Co., 118-120 S. Charles St.
Snyder & Blankfard, 226 Light St. Wharf.
C. P. Tatem & Co., 121 Light St.

Boston, Mass.

Bennett, Rand & Co., 19-20 North Market St.
F. H. Bowles & Co., 113-115 So. Market St.
Chapin Brothers, 97 South Market Street.
Conant & Bean, 15 N. side Faneuil Hall Market.
Curtis & Co., 104-106 Faneuil Hall Market.
T. E. Holway & Co., 15 North Market St.
Amos Keyes & Co., 26 Blackstone St.
A. & O. W. Mead & Co., 35 North Market St.
J. D. Mead & Co., 7-9 Fulton St.
Patch & Roberts, 17 North Market St.
Porter Brothers Co., 99-101 S. Market St.
L. W. Sherman & Co., 74 Commercial St.
Snow & Co., 21 North Market St.
Uley & Rogers, 55 Commercial St.

Buffalo, N. Y.

Batterson & Co., 167-169 Scott St.
F. Brennisen & Son, 156-158 Michigan St.
Ferrin Brothers Co., Michigan St.
Geo. Hornung, 54 W. Market & 115 Michigan Sts.
Mackey & Williams, 62 W. Mkt. & 125 Mich. Sts.
J. W. Powell, 140 Michigan St.
Rogers Commission House, 149 Michigan St.
Isaac G. Vishon, 66 West Market St.
J. J. White, 68 W. Market & 179-181 Perry Sts.

Chicago, Ill.

A. H. Barber, 229 South Water St.
Barber Fruit Co., 183 South Water St.
Barnett Bros., 159 South Water St.
George Braunling & Co., 193 South Water St.
H. L. Brown & Son, 225 South Water St.
R. A. Burnett & Co., 161 South Water St.
Emerson, Marlow & Linn, 87 South Water St.
M. George & Co., 95 South Water St.
Moses Gray & Co., 261 South Water St.
Krull & Volger Co., 123 South Water St.
Lepman & Heggie, 108-110 South Water St.

C. F. Love & Co., 89 South Water St.
A. M. Lynch & Co., 149 South Water St.
Parker Brothers, 85 South Water St.
Price & Keith, 135-137 South Water St.
J. C. & C. R. Scales, 114 South Water St.
Smith, Cordes & Co., 139 South Water St.
C. H. Weaver & Co., 129 South Water St.
G. M. H. Wagner & Sons, 165 South Water St.
Theo. C. Wegeforth & Co., 133 South Water St.

Cincinnati, O.

F. Ankenbauer & Sons, 113 East Front St.
Armacost, Riley & Co., 111 East Front St.
H. C. Beekley & Co., 218 W. 6th & 215 George Sts.
Joel Curren & Co., 29 Walnut St.
Davidson & Co., 112 East Front St.
F. Delsignore & Co., 114-116 East Front St.
F. Devoto & Bro., 108 East Front St.
M. Fugazzi & Co., 132-134 West Sixth St.
Funk Bros., 228-230 West Sixth St.
Glas, Bloom & Co., 115-117 East Front St.
J. B. Hammer & Co., 125 East Front St.
D. Hoppe & Co., 31 Walnut St.
H. T. Lawhead & Co., 212-214 W. 6th & 209-211 George Sts.
J. Leverone & Co., 100-102 East Front St.
G. E. Markley & Co., 208 W. 6th & 71 George Sts.
F. J. Nobel, 178 W. 6th St.
Pieper & Berghegger, 138 W. Court St.
H. Ransick & Sons, 226 W. 6th & 221 George Sts.
P. J. Reitz & Co., 131 East Front St.
Telker & Dunker, 34 West Court St.
Weil, Brockman & Co., 109 East Front St.
Weil, Cannon & Co., 106 East Front St.
Wiggins & Kleinfelter, 119 East Front St.

Cleveland, O.

A. R. Duncan, Jr., 119-121 Sheriff and 25-29 Huron Sts.
Hayes, Blair & Co., 120 Broadway.
Hurd & Ricksecker, 9 Huron St.
The Kelly Co., 150 and 152 Sheriff St.
Mahler-Wolf Produce Co., 11 and 13 Huron St.
D. Martin & Co., 84 and 86 Broadway.
J. J. Pitts & Co., 35 Huron St.
Strange & Nokes, 36 and 38 Huron St.
A. B. Williams & Co., 80 and 82 Broadway.

Columbus, O.

Evans & Turner, Town St., cor. Fourth.
Wm. M. Fisher & Sons, 120 East Town St.
Pletsch & Sutton, Fulton Market.
T. E. Pritchard & Co., 136 East Town St.
J. Schrader & Co., 121 South Fourth St.
Sutton Bros., 113 South Fourth St.
H. Turkopp & Co., cor. Third and Town Sts.

Detroit, Mich.

Lichtenberg & Sons, 19-25 W. Woodbridge St.
McNaughton, Walker & Co., 54 Woodbridge St., W.
Edward Read, 26 West Woodbridge St.

One "do" is worth a dozen "coulds."

H. F. Rose & Co., 24 West Woodbridge St.
Chas. W. Budd, 31 West Woodbridge St.
Alfred Rush & Son, 29 & 31 W. Woodbridge St.
D. O. Wiley & Co., 20 Woodbridge St. W.

Indianapolis, Ind.

Geo. Hitz & Co., 30-32 & 68-70 S. Delaware St.
J. L. Keach, 62 South Delaware St.
John W. Neumann & Co., 34 South Delaware St.
Roberts, Shideler & Co., 117-119 East Maryland St. and 56-58 Virginia avenue.
Sverup & Co., 22-24 South Delaware St.
The D. A. Williams Produce & Commission Co., 131 East Maryland St.

Kansas City, Mo.

T. W. Brady & Co., 403 Walnut St.
C. C. Clemons & Co., 423 Walnut St.
Evans & Hollinger, Second and Main Sts.
Gnocchio Bros. & Co., 519 Walnut St.
E. F. Goodrich, 1325 Union avenue.
A. S. Haines & Son, 112 West 4th St.
H. Kesting, 311 Walnut St.
P. V. Rocco, Bros. & Co., 515-517 Walnut St.
D. E. Smeltzer & Co., 520-522 Walnut St.

Louisville, Ky.

John T. Allen & Co., 108-110 W. Jefferson St.
E. H. Bowen & Co., 307 W. Main St.
Jos. Denunzio Fruit Co., 316-322 W. Jefferson St.
Charles H. Kahlert, 619 W. Market St.
Mayer, Mitchell & Co., 215 East Jefferson St.
Passalacqua Fruit Co., 118-120 W. Jefferson St.
John Schaefer & Sons, 331 East Market St.
Schwarz Bros., 941 to 945 East Market St.
Thompson & Co., 210 Jefferson Market.

Milwaukee, Wis.

W. M. Brigham & Co.
H. Ellinghausen & Co., 275 Broadway.
H. L. Fuller & Co., 277 Broadway.
E. R. Godfrey & Sons Co., 257-259 Broadway.
Pastorino & Schiappacasse.
J. Seefeld & Son, 283 and 285 Broadway.
R. Stafford Co., 265 Broadway.
Thomas & Schaus, 281 Broadway.
I. P. Tichenor & Co., 261 and 263 Broadway.
J. H. Wussow & Co., 269 Broadway.

Minneapolis, Minn.

Arnott & Van Dervort, 220 Sixth St. N.
Connery Fruit Company, 601-609 2d Ave. N.
Gamble-Robinson Coin. Co., 224-226 6th St. N.
Grinnell, Collins & Kneen, 208 Sixth St. N.
Hillman Bros., 204-6 Sixth St. North.
Longfellow & Bros. Co., 500-504 2d Ave. N.
McLean, Bryant & Co., 112 First Ave. N.
Porter Brothers Company, 217-223 First Ave. N.
E. P. Stacy & Sons, 100-102 First Ave. N.

Mobile, Ala.

M. J. Duggan, 105-107 Government St.
W. A. Lott, 100-102 North Water St.
Mertz, Ibach & Co., 4-6 North Commerce and 4-6 North Front Sts.
A. Muscat & Sons, 64 South Commerce St.
Rob & Toenes, 10 North Front and 10 North Commerce Sts.

New Orleans, La.

Bernard Antony & Co., 451 S. Peters St.
Barbot & Stork, 329-331 Poydras St.
Louis Darring, 319 Poydras St.
Geo. W. Davison & Co., 45-47 Poydras St.
Marks & Rittiner, 321 & 323 Poydras St.
Philip Nagele, 49 Poydras St.
Seessel, Ashner & Sugarman, 529 to 533 Poydras.
S. Segari & Co.

New York.

J. H. Bahrenburgh, Bros. & Co., 108 Murray St.
H. Brautigam & Co., 104 Park Place.
Bennett & Hall, 161 West St.
E. A. Brown, 178 Reade St.
R. W. Dixon & Son, 190 and 190½ Duane St.
S. B. Downes & Co., 329 Washington St.
Henry Elwell & Co., 310 Washington St.
S. H. & E. H. Frost, 103 Park Place.
G. Furman & Co., W. Washington Market.
Furman & Page, 112 Warren St.
Wm. Gamble & Co., 185 Reade St.
J. H. Killough & Co., 157 West St.
Austin Kimball & Co., 68 Park Place.
McCormick, Hubbs & Co., 250 Washington St.
John H. Newton, 327 Washington St.
John Nix & Co., 281 Washington St.
Phillips & Sons, 263 Washington St.
P. Ruhlman & Co., 231 Washington St.
Stevens, Simpson & Co., 232 Washington St.
A. F. Young & Co., Duane cor. Washington Sts.

Omaha, Neb.

Branch & Co., S. W. Cor 12th & Howard Sts.
James A. Clark Co., 317 South 11th St.
Icken & Wohlers, 1015 Howard St.
Porter Brothers Company, 801-811 Jones St.
Riddell & Co., 1013 Howard St.
Streight & Howes, 1017 Howard St.

Philadelphia, Pa.

Barker & Co., 12 Pine St.
Bennett, Hendrickson & Co., 320 N. Front St.
Brown & McMahon, 334 N. Front St.
G. W. Butterworth, 833 N. Second St.
S. S. Darmon, 120 Spruce St.
Wm. S. Emley, 125 Dock St.
C. G. Justice, 123 Dock St.
W. H. Michael & Son, 114 Dock St (west side).
Roberts & Andrews, 129 and 131 Callowhill St.
Edward Roberts, 226 and 228 N. Delaware St.
R. A. Shetzline & Sons, 1 Vine St.
J. W. Thorn & Co., 325 N. Water St.
W. Weinert & Co., Front and Vine Sts.
C. Wilkinson's Sons, 132 and 134 Dock St.
J. P. Wilson, 116 Dock St.

Pittsburg, Pa.

Ash & Baldwin, 937 & 939 Liberty St.
Jas. S. Braden, 801 Liberty St.
Crutchfield & Woolfolk, 613 Liberty St.
Dale & Cannon, 607 Liberty St.
Wilson Harper, 602 & 604 Wood St.
Iron City Produce Co., 623 Liberty St.
John Wallace, 631 Liberty St.

St. Louis, Mo.

F. W. Brockman Commission Co., 805 N. 3d St.
Geo. G. Fairham & Bro., 918 N. 3d St.
Gerber Fruit Co., 816 N. 3d St.
Gunn Fruit Co., 938-940 N. 3d St.
Haeisen Brothers, 929-931 N. 3d St.
P. M. Kiely & Co., 914 N. 3d St.
V. Scalzo Fruit Co., 900 N. 3d St.
Conrad Schopp & Co., 3d St. and Franklin Ave.
Shaw & Richmond, 829 W. 3d St.
G. P. Schopp & Co., 721 and 523 N. 3d St.
Trescher & Miller, 922 N. 3d St.

St. Paul, Minn.

R. E. Cobb, 294-296 East 6th St.
De Camp & Beyer, 126 East 3d St.
R. A. Durkee, 132 E. 3d St.
Dore & Redpath, 70 East 3d St.
Hemenway Fruit & Produce Co., 80 East 3d St.
Ide, Thompson & Co., 22 West 3d St.
McGuire & Mulrooney, 79 East 3d Street and 311, 313 and 315 Minnesota Sts.
B. Presley & Co., 102 East 3d St.

Cost of Marketing Farm Produce.

Outside the narrow confines of the local consuming centers, this includes such items as freight and express charges, storage, demurrage, cartage, weighing, inspection, and commissions, but not necessarily all of these. Uniformity of charges in the different markets is quite lacking, although goods which quickly deteriorate in keeping quality are obliged to pay a heavier rate than others. The market must be big enough and broad enough to take care of any usual supply of perishable goods, and, so far as that is concerned, of a supply which for the time being may be even greater than usual. Perishable produce, such as fruits, vegetables, poultry, butter, eggs, etc., must be handled expeditiously, and must stand greater charges in proportion for selling than grain, live stock, wool, etc. From the time the goods leave the country shipping station until returns are made and check received, several charges must be borne. On goods sent to a distant town or city to be sold on commission, the railroad or vessel freight is always charged up; next comes cartage from wharf or depot to salesroom or warehouse. Goods not to be sold immediately, but held for a time in order to catch a better market, must as a rule pay storage and sometimes insurance. Rates of commission are usually in the way of percentage on gross amount of money received. Some loss must be expected in the way of deterioration, breakage and other occasional charges, although the latter are infrequent. If unusual work is required in connection with handling the commodity, a charge is made. Iced poultry which has come from a distance is re-iced in transit and this is sometimes true of other perishable stuff. If placed in cold storage for a season, there is of course a charge made. Live poultry, when sent in coops to be returned, is sometimes subject to a small charge for handling the empties.

The following table shows the usual cost of cartage in the cities named and affords a fair average of these items in all wholesale markets. Such cost is added to freight and express charges paid by the commission merchant, and charged up against the country shipper, before making any returns accompanied by check or draft.

CARTAGE DEPOT OR DOCK TO WAREHOUSE, IN CENTS.

	New York	Boston	Phila- delp'a	Colum- bus	Cincin- nati.	Chicago	St. Louis.	S. Fran- cisco.
Butter, per tub.....	3@ 5	5	3	5			2½ a3	6
Eggs, per case.....	3@ 5	4	3@7	2		3@5	2 a3	5
Poultry, per package..	5@10	5@10	5@8	5		3@5	3 a5	25
Hides, per 100 pounds.	3	2½ a4	10	5		4@6	4	2½ a3
Apples, per barrel....	5	5	5@7	3	5	3@5	4 a6	5@8
Oranges, per box.....	4	3	4@5	2	2@3	3@5	3½ a4	4
Dried Fruits, p 100 lbs.	5	5@8	10					2½ a3
Potatoes, per bushel..	2@2½	2	2@2½	2		1@2	2@2½	2½
Onions, per barrel....	5	5		3	2	3@5	6	2½
Fresh veg. per pkge..	5@7½	5@8	3@10	↓	5			2½
Veal calves, each.....	10		10			3@5	3@6	2½ a4
Wool, per 100 pounds..	3@5		5	3		1@2	4	4@5

COMMISSIONS VARY GREATLY

But unless subject to special arrangement are usually 5 to 10 per cent. on perishable produce. Where potatoes are sold by the carload at a 5 per cent. rate, the commission per car is usually understood to be not less than \$10, otherwise 10 per cent. on amount of sale. The commission on apples is 5 to 15 per cent. in car loads; in some instances a fixed rate of about 15c per bbl. is made, and when jobbed from the car, an additional charge of 3 to 5c per bbl. for cartage is usually charged to country consignor. If apples are placed in

Borrow money, borrow trouble too.

cold storage, this means a charge of 25 to 50c per bbl. for the season from October to May, or about 10c per month per barrel for short storage. Eggs when sent to cold storage usually pay 35 to 50c per case of 30 doz. for the season of six months, or 10c per case per month for short storage. In warm weather a charge is frequently made of 10c per case for candling, work which must necessarily be repeated in the course of a few weeks, unless the eggs are sold in the meantime. During the season of candling, the loss through bad eggs runs from one-half dozen, which would be called first-class, to about two dozen per case of 30 dozen, or occasionally higher. Wool commission charges are not uniform, nor yet greatly different in the end, taking one market with another. Commissions are 1 to 1 1-2c per lb. but due to competition among brokers are often somewhat shaded. Charges outside of freights and commissions include such items as cartage, storage, interest on money advanced, etc. In Boston, cartage about 8c per bag, storage not charged usually, but if long held about 6c per bag per month, interest 6 per cent. per annum on advances. New York, cartage 5c per 100 lbs, and if wool is rehandled for closer grading, a charge is sometimes made of 1-4c per lb, but this is seldom an item of expense. Chicago, cartage 6c per bag, commission 1c per lb, this usually covering the charges for grading, weighing, etc. San Francisco, cartage 10c per bale, storage per month 15c per bale, insurance per month 20c on each \$100, commission 1-2c per lb, interest on advances rate of 10 per cent.

In the subjoined table the commission charges at various points apply as a rule to relatively small lots; business in a large way often being conducted at special rates according to previous agreement.

ACTUAL COMMISSIONS CHARGED FOR HANDLING.

	New York.	Boston.	Philadelphia	Columbus.	Cincinnati.	Chicago	St. Louis.	S. Francisco.
	%	%	%	%	%	%	%	%
Butter.....	5	5	5	10	5	5	5	5
Eggs.....	5	5	5	10	5	5	5	5
Poultry.....	5	5	5	10	5	5	5	5
Hides.....	2½@5	5	5	5	5	5	5	2½@5
Apples.....	10	8	5@10	8@10	10@15	10	5	8
Oranges.....	10	10	10	8@10	10	10	10	8
Small Fruits.....	10	10	10	7@10	10	10	10	8
Dried Fruits.....	5@10	5@10	5	5@10	10	5	5	5
Potatoes.....	10	5@8	7@10	10	5c bu	5@10	5	5
Onions.....	10	8	7@10	10	10@15	10	5	5
Fresh Vegetables..	5@10	5@8	10	10	10	10	10	8
Veals.....	5	5	5	—	5	5	10	2@3
Wool.....	1c lb	1c lb	5	1c lb	—	1c lb	5	2½

Goods sold on track in full cars naturally exact a smaller bill of expense than where handled in a small way, commission rates ranging usually from 2 1-2 to 5 per cent; this applies particularly to such articles as apples, potatoes, etc. Demurrage is a charge made by railroads for the delay or detention of cars beyond the time usually allowed for loading and unloading; 48 hours is usually considered the proper time for this work. Perishable goods are of course promptly withdrawn and distributed. In New York, such goods as hides, dried fruits, etc., are charged \$1 per day per car after the first 48 hours. In Philadelphia, the demurrage on apples or potatoes is \$2 per car, and on poultry in barrels 25c per package. In such western points as Columbus, Chicago, Cincinnati and St. Louis, the rate is about \$1 per car per day, while in San Francisco as high as \$3 per day is charged. These regulations are not ironclad, however, but subject to the will of transportation companies, depending upon the favor they care to show shippers, and in many instances are not enforced.

The question of shrinkage is a difficult one to handle. Butter will fre-

quently show a loss of 1 lb per tub, poultry 1 lb or more to 100 lbs. originally shipped, hides fully 3 per cent, oranges, fresh fruits and vegetables 5 to 20 per cent, dried fruits 1 to 2 per cent. Dressed veals shrink 2 to 5 lbs per carcass, and there is sometimes a shrinkage of 2 to 4 per cent. in wool for the first month and relatively less after that. If the car is tight and the weights correct at point of shipment, there ought to be little shrinkage in grain, either in bulk or sacked. The shrinkage in weight in cattle, hogs and sheep is considerable, irrespective of frequent loss through overloading, resulting in serious injury or death of one or more animals. This natural loss in weight, however, is made up wholly or in part by liberal feeding and watering of live stock at point of sale just before going on the scales to be weighed.

Prices of the year 1897, Miscellaneous Country Produce.

	Boston.				New York.				Chicago.				
	Jan. 1.	Apr. 1.	Oct. 1.	Dec. 1.	Jan. 1.	Apr. 1.	Oct. 1.	Dec. 1.	Jan. 1.	Apr. 1.	July 1.	Oct. 1.	Dec. 1.
Beeswax, p lb.....	.29	.29	.28½	.29	.26½	.26½	.26	.27	.30	.25	.27	.25	.26
Honey, comb, p lb....	—	—	—	—	.12½	.12	.12	.12	.12	.12½	.12½	.11	.11
Maple syrup, p gal...	—	.75	—	—	.80	.75	—	—	—	.85	—	—	—
Sweet potatoes, p bbl	1.25	1.25	2.50	2.50	1.25	1.12	2.25	3.25	1.60	1.00	—	3.00	4.60
Beets, p bbl.....	1.85	1.50	.87½	1.25	1.00	1.85	—	.75	—	3.00	.75	.75	.85
Celery, p doz b'ch's...	1.50	4.00	.75	1.00	1.50	1.25	1.00	.40	1.00	.85	1.00	.20	.15
Cabbage, p bbl.....	.85	.75	.50	.75	a4.50	a3.00	a6.00	a4.00	.75	1.40	—	.75	a2.25
Cauliflower, p doz....	1.50	—	.75	1.25	b7.00	—	b2.25	b3.00	c3.00	c2.50	c.75	c.65	—
Turnips, p bbl.....	1.25	1.25	1.00	.65	.75	.65	.50	.75	.65	1.00	1.00	.80	.75
Tallow, No. 1, p lb....	.03½	.03½	.03½	.03½	.03½	.03½	.03½	.03½	.03	.03	.02½	.03	.03
D. hogs, p 100 lbs.....	4.37½	5.25	5.25	5.00	6.50	7.00	7.00	6.50	4.00	4.25	—	—	4.25
D. veal, p 100 lbs.....	9.00	10.00	9.00	9.00	10.00	7.50	11.00	10.00	8.00	7.50	8.50	9.00	9.00
Mess pork, p 100 lbs...	10.25	11.50	13.50	12.50	8.50	9.50	9.25	9.00	7.25	8.55	7.65	8.20	8.50
Lard, p 100 lbs.....	6.00	5.25	6.00	5.60	4.07½	4.42½	4.90	4.47½	3.85	4.22½	3.75	4.52½	4.22½
Bran, p ton.....	12.50	16.00	13.50	13.75	12.50	15.00	14.00	14.00	7.65	9.00	7.50	8.75	9.50
Middlings, p ton.....	11.75	14.00	13.50	13.75	14.00	16.00	17.00	17.00	9.00	9.00	—	9.50	10.10
Buckwheat, p bu.....	—	—	—	—	.35	.37½	.48½	.39½	.29½	.33½	.33½	.43½	.40½
Concord gr., 5-lb b'sk't	.08	—	.10	.08	.10	—	.08½	.09	.14	—	—	.07	.10

a P. 100 heads.

b P. bbl.

c P. crate.

Effects of Seasoning (United States Department of Agriculture).

A cord of green wood weighs 50 per cent. more than when air dry.

A cord of well-dried wood still contains 600 pounds of water.

In the burning of green wood, nearly one-half the heat is lost in evaporating the water contained in it.

One-half the weight of fresh, sappy pine is due to water. The kiln-drying of lumber, at a small expense, saves 1000 to 1500 pounds of freight per 1000 feet, B. M.

Capacity of a Ten-Ton Freight Car.

Flour.....	90 barrels.	Butter.....	20,000 pounds.
Lime.....	70 "	Lumber.....	6,000 feet.
Salt.....	70 "	Wheat.....	600 bushels.
Whisky.....	60 "	Barley.....	600 "
Flour.....	200 sacks.	Apples.....	370 "
Eggs.....	130 to 160 barrels.	Corn.....	600 "
Wood.....	6 cords.	Potatoes.....	430 "
Sheep.....	80 to 100 head.	Bran.....	1,000 "
Hogs.....	50 to 60 "	Oats.....	800 "
Cattle.....	18 to 20 "	Flax Seed.....	600 "

STAPLE MONEY CROPS.

The Domestic Sugar Industry.

The most striking feature in American agriculture during 1897-8 is the remarkable interest shown in developing the domestic beet sugar industry. The higher tariff and the countervailing duties on sugar imported from export-bounty paying countries are designed to preserve the United States market for domestic sugar. This law was passed in time to provoke experiments during 1897 with sugar beets by thousands of farmers all over the country. Many hundred analyses of the beets grown last year are now (January, '98) being completed and tabulated at the United States department of



agriculture and at the various state experiment stations. Together with much similar work done during the past 10 years, these returns indicate that the area in which this crop can be grown to commercial advantage is quite as large as is indicated by the accompanying chart, though there are many sections in this vast region that possess advantages over other portions.

A large number of organized efforts to secure the establishment of a beet sugar factory are now being conducted at numerous points from New York westward to the Pacific coast, and from North Carolina and Tennessee northward. Further south, notably in Georgia, there is keen interest in sugar beets, while in the cane sugar belt along the gulf—in Florida, Louisiana and Texas—the cane sugar industry is growing rapidly. How many new sugar factories will be equipped in time to work up the 1898 crop of beets or cane cannot now be stated; but considering the large investment the number will be a very respectable one. Next year, 1899, should see a still larger number of such enterprises under way, provided the congressional elections

A fat kitchen, a lean will.

this fall warrant the conclusion that the present policy for the development of our American sugar industry is to be maintained. Under such circumstances, the following is a reasonable forecast under favorable climatic seasons of the

PROBABLE INCREASE IN UNITED STATES SUGAR PRODUCTION.

In long tons of 2,240 pounds.

Crop.	Cane.	Beet.	Total.	Crop.	Cane.	Beet.	Total.
1896	243,000	40,000	283,000	1899	350,000	350,000	700,000
1897	270,000	55,000	325,000	1900	400,000	500,000	900,000
1898	300,000	200,000	500,000	1905	600,000	1,400,000	2,000,000

Should this forecast be fulfilled, it is evident that by 1905 the United States would be producing fully two-thirds of its then probable consumption of 3,000,000 tons of sugar. Five years later, this country should have a surplus to export, thus revolutionizing the world's sugar market.

THE MAIN OBSTACLE NOW IN SIGHT

To interfere with this brilliant prospective development, is the possible annexation of Hawaii. Indeed, only the yellow races have been able to hold their own against Europe's highly subsidized beet sugar industry, yet so quietly has this application gone on, of degraded labor to the sugar cane, that it is astonishing to find United States imports of sugar from Hawaii, the Orient and Egypt jumped from 250,000 tons in 1892 to 700,000 tons last year. The Sandwich islands' product has nearly doubled in the five years, during which so enormous has been their importation of coolie or yellow labor that Chinese and Japanese now comprise more than half the male population.

This result has been fostered by our treaty of reciprocity with Hawaii, under which that sugar has had free admission to this market since 1876. In this way, the Hawaiian sugar monopoly has, by removal of duties, practically drawn a direct bounty of over \$66,000,000 from the United States treasury. If these islands are going to continue to send their sugar free into this country, the business there will be still further and enormously developed, with their coolie labor at \$3 a month and found, to the great detriment of American farmers, who wish this market for sugar made from beets and cane grown on American farms by American labor. The possibility of annexation has already thrown cold water upon many beet sugar factory propositions.

WHAT THE SUGAR INDUSTRY MEANS.

First, and most important, it means a new and profitable crop for American farmers, occupying many thousands of acres, and yielding a net profit of \$10 to \$25 per acre, after paying in cash all the expenses of the crop. Contrast this with meager profits, if any, on corn and wheat, during the average of recent years. The expense in beet culture is mostly labor, and this labor is largely a class that is now unemployed—children, unskilled help, etc. An immense army of laborers and workers would be required to man the sugar factories, machine shops, foundries, transportation and other industries needed to build and operate the hundreds of big plants that will be required to make this sugar. It will take some \$250,000,000 of capital to equip these sugar factories. The \$100,000,000 now sent abroad each year for imported sugar will then go into the pockets of the farmers, laborers and capitalists engaged in our domestic sugar industry. The indirect benefits accruing to people in other branches of farming and business will be corre-

After feasts made, the maker scratches his head.

spondingly great," while the industry is too widespread to be manipulated by any trust. It would also help to solve the money problem, to keep at home the vast sums that now go abroad for sugar.

PROGRESS OF BEET SUGAR IN THE UNITED STATES.

CALIFORNIA—The Spreckels new beet sugar factory at Salinas, Cal., will begin operations this fall (1898) with a capacity of 3,000 tons of beets per day of 24 hours, and it is expected will make 50,000 tons of sugar. The other California factories expect to produce in 1898—Watsonville, 20,000 tons of sugar; Alvarado, 15,000 tons; Chino, 30,000 tons; Alamitos, 15,000 tons, or a total of 130,000 tons. With a favorable season for beets, and the erection of only a few of the numerous factories now prospected, California alone will produce upward of 150,000 and 200,000 tons of refined granulated sugar from beets grown in 1898.

Alameda Sugar Co's factory at Alvarado, not far from Oakland, Cal., is the oldest in the U. S. It doubled its capacity last year at a cost of \$200,000, and worked up nearly 75,000 tons of beets. In 1896 it began slicing beets on August 24, and finished Jan. 24, 1897. Statistics for five campaigns follow :

	1896	1895	1894	1893	1892
Acres of beets grown.....	3,500	2,400	2,894	1,803	1,594
Tons of beets produced.....	48,500	27,400	39,800	20,300	15,000
Average yield per acre, tons.....	13.9	11.4	13.7	11.3	11.3
Average % sugar in cosettes.....	13.9	14.1	11.56	15.5	12.53

The Chino valley beet sugar company had rather an unfavorable campaign in '96-97, owing to a poor crop of beets with unsatisfactory sugar content. It was really the only season this factory has had such an experience. Its 1897 crop was again satisfactory and over 100,000 tons of beets were manufactured into sugar during the 1897-8 campaign. Fully as many beets will be grown for the Chino factory in 1898, although the same people are building the equally large factory of the Pacific sugar company at Hueneme, for which 10,000 acres of beets have been contracted. Chino's first five campaigns afford this comparison :

	1891	1892	1893	1894	1895
Acres of beets grown.....	1,800	3,488	4,191	4,778	7,528
Tons of beets produced.....	13,080	26,266	49,353	43,773	83,035
Average yield of beets per acre, tons.....	7.26	7.50	11.7	9.16	11.03
Per cent of sugar in beets.....	13	14	14	15	15
*Crude sugar per acre, lbs.....	1,888	2,100	3,276	2,748	3,309
*Pure sugar per acre (80 %).	1,510	1,680	2,621	2,198	2,670
Began making sugar.....	Aug. 20	July 13	July 31	Aug. 2	July 9
Finished making sugar.....	Oct. 31	Oct. 11	Nov. 4	Oct. 24	Nov. 14
Days in operation.....	73	91	97	85	129
Average weight of beets worked daily, tons..	179	288	509	526	644
Average weight of sugar made daily, lbs.....	28,108	86,852	15,592	111,431	161,129
Total weight of sugar made, tons.....	1,026	3,952	7,532	4,736	10,393
Average paid farmers per ton beets.....	\$3.90	4.26	4.26	4.66	4.35
Average return per acre.....	\$28.37	31.95	49.84	42.69	47.98

*Estimates or data figured by the author, the other facts being all furnished from the company's books. The ton is of 2000 lbs. Granulated sugar only was made in '91, raw sugar only in '92 and '93, while the product of '94 was all the best grade of refined white granulated sugar except 1009 tons (2,017,363 lbs) of raw sugar, and in '95 only 51 tons (102,286 lbs) of raws.

To lengthen thy life, lessen thy meals.

The Spreckels factory at Watsonville, Santa Cruz Co, is the next oldest in operation. It has sliced 1400 tons of beets in 24 hours. The '96 crop of 155,000 tons produced 19,582 tons of raw sugar. The factory ran 171 days, from Sept to Jan 29. Average yield in 1896 was 14 tons of beets on 11,017 acres, producing an average of 3,545 lbs. of raw sugar per acre. It paid \$4 per ton for beets delivered, or about \$650,000 in all, compared to \$300,000 in '95. Since it started in a small way in 1888 this factory has paid over \$3,000,000 for beets. The 1895 campaign consumed 77,145 tons beets in 2063 hours, making 10,945 tons raw sugar. Beets averaged 11 tons per acre, or 1½ tons raw sugar on 7,244 acres.

Los Alamitos factory began its first campaign July 19, 1897, and finished about October 15, consuming about 27,000 tons of beets grown on 2900 acres, which averaged over 15 per cent sugar, its first 30 days run averaging 18 per cent. It made 6,000,000 lbs sugar. This factory of 350 tons daily capacity is being enlarged to 700 tons for the '98 crop. W. A. Clark, who is largely interested in this plant, is building another 800-ton sugar factory near by.

UTAH—Determined efforts to secure two new factories are being made. The Utah Sugar Company's plant at Lehi City, the only one in the state up to 1898, had rather a poor crop in yield and quality in '97, but previously affords this exhibit:

	1891.	1892.	1893.	1894.	1895.
Acres of beets grown	1,500	1,500	2,755	2,850	3,300
Tons of beets produced	9,960	9,816	26,800	32,694	38,108
Average yield of beets per acre, tons	6.6	6.5	9.7	11.47	11.54
Per cent of sugar in beets	11.0	11.8	11.6	12.7	13.5
Purity of sugar, per cent	80.0	80.0	79.5	80.2	81.5
*Crude sugar per acre, lbs.	1,452	1,534	2,250	2,913	3,116
*Pure sugar per acre, lbs	1,162	1,227	1,719	2,336	2,539
Began making sugar	Oct. 12	Sept. 26	Sept. 19	Sept. 25	Sept. 5
Finished making sugar	Dec. 8	Nov. 13	Dec. 21	Jan. 5	Dec. 31
Days in operation	58	49	94	103	118

* Estimates added by the author as matters of interest; other figures official. In 1896 about 45,000 tons of beets were worked, for which \$4.25 per ton was paid, or a total of about \$190,000; paid for labor at factory about \$35,000; for coal \$30,000, and for other supplies \$25,000.

NEBRASKA—The dry season of 1894 produced beets of a low water content that yielded an average of 216 lbs of refined sugar to the ton, compared to 176 lbs the year before. In 1895, on the other hand, late rains and a warm fall started a second growth which increased the size and weight at expense of sugar, which averaged only 150 lbs of refined to the ton. The average for 1896 was about 200 pounds of refined sugar to the ton, and thus compares with previous years since the factories at Grand Island and Norfolk began operations:

Year.	Tons of beets worked.			Granulated sugar produced, lb.			No. of growers.		
	G. I.	Norfolk	Total.	G. I.	Norfolk	Total.	G. I.	No'f'k	Total
1890	4,414	....	....	736,400	.....	.....	607	..	...
1891	10,868	8,179	19,047	1,415,800	1,318,700	2,734,500	408	204	612
1892	13,055	10,725	23,780	2,110,100	1,693,400	3,803,500	240	490	730
1893	11,150	22,625	33,775	1,835,900	4,107,300	5,943,200	135	181	316
*1894	drouth	25,633	25,633	.....	5,556,100	5,556,100	..	534	534
1895	24,343	31,194	55,537	2,983,400	5,395,500	8,378,900	619	698	1317
†1896	75,000	....	75,000	.....	.....	15,000,000	..	..	2000

*General drouth made tonnage so small in 1894 that the beets belonging to the Grand Island factory were worked up at the Norfolk factory. †Partly estimated. In 1897, Norfolk worked about 36,000 tons of beets and Grand Island about 34,000 tons.

WISCONSIN—A factory was started at Menomonee Falls in 1896, but owing to delay, mismanagement, want of funds and improper construction, the

enterprise was a failure. An attempt to reorganize and refit it is now being made. This state produces very rich beets; failure was not the farmers' fault.

NEW MEXICO—The Pecos valley factory is equipped from the defunct plant at Berthierville, Quebec. Its first campaign was 85 days from Dec. 1, 1896, but beets were sliced only 50 days. They averaged nearly 16 per cent sugar. About 2000 acres of beets were grown in 1897, but the result was not as satisfactory as had been hoped.

The '97 climatic conditions and insect pests were unusual. Some farmers did not take proper care of their crop and many fields averaged only four or five tons per acre, but the best growers gotten to twenty tons. Quality of beets delivered to factory was high, averaging $15\frac{1}{2}$ per cent. sugar to the weight of the beet up to Dec. 15 (date of our latest advice), with an average profit of 82.5. A large tonnage for 1898 is hoped for, but this second year's work emphasizes the fact that there is lots for the man to learn who has never raised sugar beets.

NEW YORK—The first factory in this state is at Rome, equipped with second-hand machinery from the failure at Farnham, Quebec. It started up Oct. 15, and closed Dec. 22. It sliced 4,596 tons, average of sugar in the white beets $13\frac{1}{2}$ per cent., granulated sugar made 334,500 lbs., second sugar 350,000 lbs., third sugar 150,000 lbs., molasses 42,000 gals., pulp 1,500 tons. It is trying to contract for 6,000 acres of beets for 1898. There is much enthusiasm over the industry, especially in Western New York, and factories are projected at Rochester, Batavia, Jamestown, and other points. Analyses of 425 samples from all points of central and western New York showed 14 to 20 per cent. sugar, average 17 per cent., with an average purity of 83.5 per cent.

PRICES PAID FOR BEETS.

In all cases the price is for beets delivered at factory, net weight less tare. Two methods are in vogue: 1, To pay a straight price for all beets; 2, to pay a minimum price for beets containing 12 per cent sugar, and 25 cents per ton for each additional one per cent. At Watsonville, Alvarado and Lehi, a straight price of \$4 per ton is paid, but Lehi offers \$4.25 for '98. The New York factory pays \$4 per ton, but the state bounty gives growers another dollar, making \$5 in all. At Chino, the price in 1896 was \$3 per ton for all testing 12 per cent sugar, and 25 cents extra for each additional one per cent sugar; in '97 this was advanced to \$3.50. As quality was mainly from 14 to 16 per cent, farmers got \$4 to \$4.50 per ton of 2000 pounds. For '98 the basis price is \$3.50 at Chino. The Los Alamitos factory offers the same, but last year the latter paid \$3.25, netting growers \$4 to \$4.75 per ton. The Nebraska factories paid \$4 in '97 for beets averaging 12 per cent sugar and 80 per cent purity; if 11 and 75 per cent, \$3.25; if 10 and 70 per cent, \$2.50.

WORLD'S PRODUCTION OF SUGAR.

In tons of 2240 pounds.

Season of	Beet.	Cane.	Total.	Season of	Beet.	Cane.	Total.
1884-85	2,690,000	2,180,000	4,870,000	1892-93	3,344,000	2,769,000	6,113,000
1887-88	2,407,000	2,541,000	4,948,000	1893-94	3,786,000	3,260,000	7,046,000
1888-89	2,708,000	2,359,000	5,067,000	1894-95	4,691,000	3,137,000	7,828,000
1889-90	3,563,000	2,138,000	5,701,000	1895-96	4,232,000	2,556,000	6,788,000
1890-91	3,640,000	2,597,000	6,237,000	1896-97	4,773,000	2,432,000	7,204,000
1891-92	3,445,000	2,785,000	6,230,000				

Cane sugar production is now only about what it was 15 years ago; beet sugar has doubled.

DEVELOPMENT OF THE BEET SUGAR INDUSTRY IN EUROPE.

Production (tons of 2240 pounds)	1884	1894	Gain per cent
Austria-Hungary.....	653,000	1,050,000	61
Germany.....	1,147,000	1,800,000	57
France.....	303,000	814,000	163
Belgium.....	116,000	230,000	99
Holland.....	48,000	90,000	88
Russia.....	406,000	600,000	48
Other European countries.....	18,000	108,000	500
Tot. European sugar product'n (beet.)	2,691,000	4,792,000	78

The world's sugar production and consumption are increasing between six and seven per cent per annum. Thus the industry is doubling itself every fifteen years.

THE SUGAR TRADE OF THE UNITED STATES.

The figures for domestic production are from Willett & Gray's Sugar Statistical, the acknowledged authority, and were especially compiled by them for this work. The domestic crop each year is manufactured into sugar between August and February of the succeeding year. Hence, the figures are for the crop grown in the first year named in the first column, while the imports are for the fiscal year ended the June 30 following. Adding the domestic production and imports gives the total supply of sugar, from which the consumption per capita is estimated. The wholesale value of imported sugar is given as reported by the United States treasury department, whose official figures of quantities of imports are also used. The average value per pound of "fair refining" sugar each year is given in the last column. This, multiplied by the pounds of domestic sugar produced, gives the estimated wholesale value of the American product, though the figures are probably too high. This, added to the value of imported sugar, gives the total wholesale value of the sugar consumed in the United States each year.

Fiscal Years. July 1 to June 30.	Domestic production.			Imports. For'n sug. Tons.	Total. Supply. Tons.	Wholesale value.			Value. Av. Per lb.
	Cane. Tons.	Beet. Tons.	Total Tons.			Imp. Mil'ns.	Dom. Dollars	Total.	
1880-81	92,802	500	93,302	869,082	962,384	83.4	15.8	\$99	7.58
1881-82	127,367	500	127,867	888,416	1,016,283	84.4	21.8	106	7.62
1882-83	76,373	500	76,873	954,316	1,031,189	84.3	12.5	96	7.25
1883-84	142,297	535	142,832	1,230,543	1,373,375	98.3	21.5	119	6.76
1884-85	135,243	953	136,196	1,213,341	1,349,537	72.6	16.1	88	5.27
1885-86	100,876	600	101,476	1,200,840	1,302,316	80.8	11.4	92	5.02
1886-87	135,158	800	135,958	1,400,108	1,536,066	78.5	14.9	93	4.88
1887-88	85,394	255	85,649	1,205,484	1,291,133	74.3	9.0	83	4.70
1888-89	167,814	1,910	169,724	1,233,122	1,402,846	88.6	19.2	107	5.05
1889-90	153,909	2,600	156,509	1,309,822	1,466,331	96.2	20.1	116	5.73
1890-91	136,503	2,800	139,303	1,555,123	1,694,426	95.1	15.7	110	5.01
1891-92	221,951	5,359	227,310	1,587,728	1,815,038	104.1	17.2	121	3.37
1892-93	165,437	12,091	177,528	1,486,656	1,664,184	116.2	11.2	127	2.81
1893-94	235,886	20,453	256,339	1,939,818	2,196,157	126.7	18.4	135	3.20
1894-95	271,336	20,443	291,889	1,595,808	1,887,697	75.0	16.9	91	2.60
1895-96	324,506	30,000	354,506	1,739,313	2,093,819	89.2	23.2	102	2.92
1896-97	243,220	40,000	283,220	2,195,493	2,478,713	99.0	20.0	114	3.16
Totals,	2,816,072	140,299	2,956,481	23,605,013	27,661,362	1,546.7	284.9	1,811	

From 1880 to 1895 the United States produced only one-tenth of the sugar it consumed. During this period, the United States paid out about 1500 millions of dollars for imported sugar.

SUGAR ORGANIZATIONS.

American Sugar Growers' society, the league of local and sectional organizations that was instrumental in obtaining the sugar tariff of 1897, although bitterly opposed by the sugar trust. President, R. M. Allen of Ames, Neb., who is also president of Nebraska sugar beet growing association; vice president, Charles A. Farwell of New Orleans, La., who is president of the United States cane growers' association; secre-

Don't change a one-eyed horse for a blind one.

tary, B. W. Snow, Marquette building, Chicago, Ill.; treasurer, Herbert Myrick of 52 Lafayette Place, New York city. This society is conducting the campaign against Hawaiian annexation.

American Cane Growers' association of the United States: President, Charles A. Farwell, New Orleans, La.; vice president, L. M. Soniat, New Orleans, La.; secretary and treasurer, D. D. Colcock, New Orleans, La.; office, 625 Gravier street.

Association of Beet Sugar Manufacturers: President, Henry T. Oxnard of Norfolk, Neb.; vice president, J. Ross Clark of Butte, Mont.; treasurer and secretary, James Coffin of No 132 Market street, San Francisco, Cal.

IMPORTS OF SUGAR INTO THE UNITED STATES.

Expressed in millions of pounds.

Countries from which imported.	Calendar year ended Dec. 31.				Fis.yr. end June 30, '97.	Total.
	1879.	Total.	1894.	Total.		
Cuba	1,360		2,203		576	
West Indies, Mexico, etc.....	117		362		559	
Central America.....		1,477		2,565		1,135
Brazil	63		258		141	
Other South American	19		147		243	
South America.....		82		405		384
Hawaii	42		325		431	
East Indies.....	167		420		645	
Oceanica.....		209		745		1,076
a Europe.....		7		554		1,826
Other countries.....		8		16		298
Total.....		1,783		4,286		4,720

a Includes for 1894, from Germany 355 million pounds, United Kingdom 49, Netherlands 12, France 14, Austria-Hungary 44, and Belgium 80 million pounds.

a Includes for 1896, from Germany 450 million pounds, United Kingdom 37, Netherlands 7, Austria-Hungary 40, and Belgium 72, other Europe 21 million pounds.

a Includes for 1897, from Germany 1,511 million pounds, United Kingdom 74, Netherlands 25, Austria-Hungary 94, and Belgium 130, other Europe 66 million pounds.

RATES OF DUTY ON BEST GRADES OF IMPORTED SUGAR.

(In cents per pound.)

UNITED STATES.

1861, 5 cents per lb.
 1862, 4 cents per lb.
 1864, 5 cents per lb.
 1870, 4 cents per lb.
 1874, 5 cents per lb.
 1883, 2½ to 3½ cents per lb.
 1890, ½c duty, bounty on domes'c sug., 2c p lb
 1894, 40 per cent ad valorem.
 1897, 1 to 2½ cents p lb, av. about 72 per cent

PRESENT DUTIES IMPOSED BY OTHER COUNTRIES.

Germany, 3.9 to 4.75 cents per lb.
 Austria-Hungary, 3.9 to 4.11 cents per lb.
 Belgium, 3.94 to 4.36 cents per lb.
 Holland, 4.8 cents per pound.
 Russia, 6.6 to 8.88 cents per lb.
 Italy, 5.25 to 8.35 cents per lb.
 Spain, 4½ cents on foreign.
 Spain, 2.94 cents on colonial.
 France, 6 to 7.45 cents per lb.

The highest figures for the United States are for refined sugar, but raws constitute the bulk of imports. In the figures for foreign countries the smaller amount is for raw and the larger amount for refined sugar.

Reta price of refined granulated sugar January, 1898: In England, about 5c per lb.* United States 5½ cents, Germany 9 cents, France 10 cents, Russia 13 cents, Italy 14 cents. Consumption per capita is largest in the United States, having increased from 45 lbs. per capita about 1880 to over 65 lbs per capita in '97.

The World's Potato Crop.

The principal food product of modern nations is the potato—a fact not one person in a million is aware of. A full world's production of potatoes is about 4000 million bushels, of wheat 2500 millions, of corn 2600 millions, of rye about 1300 and of barley not quite 750 million bushels. The humble potato is the food staple of the masses to such an extent that Europe produces nearly 2 1-2 times as many bushels of this esculent as she does of wheat. And the total production of all cereals in Europe exceeds by only 50 per cent the outturn of her potato crop alone.

Average potato crop of all Europe reported (including United Kingdom)

for recent years of full production (1896-5-3) was 3,465 million bushels, adding unreported, makes a total of 3,500 million bushels as Europe's full average production of potatoes. Out of a reported world's acreage averaging about 30 million acres of potatoes, Europe has 26 million acres. Including unreported countries, the world's total potato crop in the season of largest production (95-6) could not have exceeded 4000 million bushels, of which Europe supplied seven-eighths and the United States only about one-sixteenth.

A full yield per acre of potatoes in all Europe (from '96-5-3) averages 132 bu per acre, lowest about 100 bu. Great Britain's yield runs from 130 bu in '91 to 211 bu in '95, averaging 179 bu per acre from '91-6 inclusive. In the United States, potatoes made 93 bu per acre in '91, and 96 bushels in the smallest crop (92), averaging from five good years 82 bu per acre. This is a poor showing for the United States compared to Europe.

UNIVERSAL CROP IN UNITED STATES.

Although not a speculative commodity like wheat or cotton, the potato crop of the United States is a most important factor in making up food requirements, and to a certain extent in regulating the price of many other farm products. A crop universal geographically, yet the main surplus available for markets after harvest is ended is derived from comparatively few states. These include New England, New York, Michigan, Wisconsin, Minnesota, the Dakotas, and to a less extent, Colorado, Utah and California. While other sections, including the south, turn off liberal crops, these as a rule are mostly consumed at home, although in certain years various states not in the commercial belt named have a liberal surplus for export beyond their borders. Nor is there much international trade in potatoes, nearly every country, both in America and Europe, consuming almost or quite its entire production, one year with another. A number of countries yield a moderate surplus beyond home requirements, exporting this to neighboring territory not so fortunate. But so far as the United States is concerned, the imports and exports are insignificant compared with the great volume of the crop.

A full yield of potatoes in the United States is 250,000,000 bu. This has been exceeded but once or twice, while in short years the crop measured only 150 to 175 millions. The crop of 1897 was about 170 millions, compared with 286 millions in 1895, the largest on record, and 150 millions, the short crop of 1890. So far as acreage is concerned, there has been little increase since the early 80s. Where extended areas have been brought under this crop in some states, a portion of the normal acreage in other states may be, one year with another, devoted to other crops, particularly following a season of low prices. Owing to the great bulk and perishable nature of the crop, it cannot be handled as advantageously as many others. As a result, in years of big crops, net returns to farmers located long distances from markets are often quite unsatisfactory. Following the big crop of 1895, when the yield was especially heavy in the northwest, untold thousands of bushels at interior points could not be moved, owing to high cost of carriage, this resulting in a restricted acreage the next year. The area under this crop is 2,500,000 to 3,000,000 acres, occasionally a little more, and compared with 2,000,000 acres in the early 80s.

The potato is a pioneer, in a sense, yielding exceptionally well in such comparatively new countries as northern Maine, parts of Michigan, Wisconsin, Minnesota, the Dakotas and Colorado. This applies particularly to quality, rate of yield and freedom from disease. The chief enemies of the potato crop are insects, blight and rust, followed by a tendency toward rapid rotting late in the season and after harvest.

Courtesy costs nothing.

The imports and exports form but a drop in the bucket compared with the great volume of the crop. In short years the United States imports a few potatoes from Scotland and northern Europe, and in normal years considerable quantities filter into this country from the lower Canadian provinces. In addition, there are unimportant imports of fancy stock from the Bermudas every winter and spring, before our own southern crop is ready for market, these exerting no influence in late potatoes.

THE POTATO CROP OF THE UNITED STATES IN 1897

Was the nearest a failure of any since 1892, and compared with the liberal yield of 1896 showed an apparent falling off of 30 per cent in tonnage, with the quality as a whole also greatly deficient. Chief reasons for the disaster were blight and rot, as a result of extremes of weather conditions. Excessive rainfall here and there, failure of germination, serious drouth in parts of the west, rust, scab, insects, etc, have all been prominently in evidence. Excessive rot following bad weather largely caused the shortage in the middle and eastern states and in Canada, and positive drouth in much of the central west cut down the rate of yield there. Taking the country at large, the crop was best in the northwestern states. Rust cut the crop in Aroostook Co, Maine; the New England crop as a whole was only half that of 1896, and weather conditions in New York reduced the yield to half that of two years ago.

THE UNITED STATES POTATO CROP BY STATES, ACREAGE AND YIELD.

The year 1897 compared with the full average crop of 1896, and with the phenomenally big crop of 1895.

United States.	Acres grown.			Yield per acre, bu.			Total production, bushels.		
	1897	1896	1895	1897	1896	1895	1897	1896	1895
Me.	40,200	55,000	68,000	72	114	120	2,900,000	6,300,000	8,160,000
N. H.	17,500	19,000	23,000	49	112	125	900,000	2,200,000	2,875,000
Vt.	22,000	25,000	31,000	70	121	120	1,500,000	3,000,000	3,720,000
Mass.	25,200	28,000	32,000	63	92	118	1,590,000	2,580,000	3,775,000
R. I.	5,200	5,000	6,000	75	105	110	400,000	540,000	660,000
Ct.	19,200	23,000	26,000	60	110	118	1,150,000	2,530,000	3,068,000
N. Y.	321,000	352,000	427,000	63	86	95	20,223,000	30,270,000	40,565,000
N. J.	38,000	41,000	47,000	65	89	90	2,500,000	3,700,000	4,230,000
Pa.	188,000	203,000	244,000	59	127	90	11,092,000	25,800,000	21,960,000
Ohio.	183,000	193,000	227,000	40	90	60	7,320,000	17,370,000	13,620,000
Mich.	218,000	230,000	246,000	65	70	91	14,200,000	16,100,000	22,386,000
Ind.	110,000	112,000	115,000	38	75	68	4,180,000	8,400,000	7,820,000
Ill.	155,000	152,000	155,000	40	70	75	6,200,000	10,640,000	11,625,000
Wis.	173,000	185,000	200,000	95	90	110	16,435,000	18,500,000	22,000,000
Ia.	180,000	193,000	205,000	58	94	110	10,440,000	16,700,000	22,550,000
Minn.	125,000	132,000	175,000	100	95	115	12,500,000	12,500,000	20,125,000
Mo.	91,000	95,000	109,000	50	96	108	4,450,600	9,100,000	11,770,000
Kan.	137,000	130,000	129,000	45	80	70	6,165,000	10,400,000	9,030,000
Neb.	153,000	143,000	128,000	52	75	73	7,956,000	10,700,000	9,344,000
S. D.	57,000	64,000	70,000	110	60	54	6,270,000	3,400,000	3,780,000
N. D.	35,000	40,000	52,000	115	112	120	4,025,000	4,500,000	6,240,000
Col.	40,000	38,000	42,000	100	90	135	4,000,000	3,400,000	5,670,000
Cal.	30,000	31,000	31,000	95	85	87	2,850,000	2,650,000	2,697,000
Ore.	18,000	18,000	20,000	105	68	90	1,890,000	1,300,000	1,800,000
Wash.	19,000	18,000	19,000	120	106	125	2,280,000	1,900,000	2,375,000
Other.	345,000	340,000	377,000	60	62	65	20,700,000	21,000,000	24,505,000
Total	2,745,000	2,865,000	3,204,000	64	86	89	174,116,000	245,480,000	286,350,000
Canada									
Ont.	170,000	179,000	185,000	107	119	159	18,190,000	21,300,000	29,390,000
Que.	150,000	154,000	154,000	90	105	115	13,500,000	16,200,000	17,710,000
N. S.	36,000	45,000	43,700	112	117	118	4,032,000	5,250,000	5,156,000
N. B.	38,000	42,000	42,000	88	90	96	3,344,000	3,800,000	4,032,000
P. E. I.	40,000	41,500	41,500	175	140	150	7,000,000	5,800,000	6,225,000
Man'ba	13,600	12,300	16,700	190	160	243	2,600,000	2,200,000	4,043,000
B. C.	5,500	5,400	5,100	175	200	175	960,000	1,080,000	892,000
N. W. T.	4,300	4,300	4,100	150	150	145	650,000	650,000	594,000
Total	457,400	483,500	492,100	110	116	116	50,276,000	56,280,000	68,042,000

STOCKS OF POTATOES DEC. 31, AND PRICES.

Crop of	Total crop.	Farmer's hands Dec. 31.	Farm price Dec. 1.	Boston prices.		
				Nov.	Jan.	Apr.
1897	174			70	75	?
1896	246	135	29	45	43	38
1895	286	141	33	38	35	35
1891	250	150	37	50	50	45
1889	218	901	40	60	70	1.80
1883	208	135	42	50	50	45

AMERICAN POTATO CROP FOR 17 YEARS, WITH COMPARISONS.

The imports and exports corresponding to the domestic crop of 1896 are for the fiscal year ending June 30, 1897, as all imports are during the period October to June, and so on for the other years. Boston market prices for November, January and April following the harvest are selected because most sensitive to importations. The average value of imported potatoes is given under "Import." The average prices on farms of U. S. Dec. 1, as returned to U. S. department of agriculture, are stated under "Farm."

Crop of	Yield in bushels.			United States.		Prices of potatoes.				
	Acres potatoes.	Per acre.	Total crop.	Import. Bu.	Export. Bu.	Imp't.	Farm.	Nov.	Jan.	Apr.
1897	2,745,000	64	174,116,000	?	?	?		\$0.70	\$0.75	?
1896	2,865,000	86	245,460,000	247,186	926,646	\$0.58	.29	.39	0.40	\$0.43
1895	3,204,000	89	286,350,000	175,240	680,000	.73	.27	.38	.35	.35
1894	2,914,000	64	185,000,000	1,343,000	573,000	.45	.54	.38	.58	.70
1893	2,605,000	72	183,000,000	3,003,000	793,000	.42	.59	.68	.68	.80
1892	2,506,000	62	155,000,000	4,317,000	846,000	.47	.67	.80	1.00	1.10
1891	2,660,000	93	250,000,000	187,000	557,000	.95	.37	.50	.50	.45
1890	2,606,000	58	150,000,000	5,402,000	341,000	.51	.78	.85	1.05	1.15
1889	2,601,000	76	218,000,000	3,416,000	407,000	.40	.40	.60	.70	1.00
1888	2,533,000	80	202,000,000	883,000	472,000	.36	.40	.60	.60	.60
1887	2,357,000	57	134,000,000	8,260,000	404,000	.45	.69	.80	.90	1.12
1886	2,287,000	73	168,000,000	1,432,000	435,000	.38	.45	.60	.60	.70
1885	2,226,000	78	175,000,000	1,937,000	495,000	.33	.53	.60	.85	.80
1884	2,221,000	86	191,000,000	659,000	80,000	.30	—	.57	.58	.65
1883	2,289,000	86	208,000,000	425,000	555,000	.45	—	.50	.50	.45
1882	2,172,000	78	171,000,000	2,362,000	39,000	—	—	.70	.95	.95
1881	2,042,000	53	109,000,000	8,790,000	08,000	—	—	.90	1.10	1.25

WORLD'S POTATO ACREAGE AND YIELD FOR SIX YEARS.

Country.	Millions of Acres.						Millions of Bushels.					
	*1896	1895	1894	1893	1892	1891	*1896	1895	1894	1893	1892	1891
Russia.....	5.9	5.8	5.8	5.7	5.4	43.7	618	548	519	556	446	280
Poland.....	1.9	1.8	1.7	*1.6	*1.5	*1.4	272	230	173	*240	219	*160
Norway <i>a</i>	0.1	*0.1	0.1	0.1	0.1	0.1	26	25	25	27	23	23
Sweden.....	0.1	*0.4	0.4	0.4	0.4	0.4	62	54	44	61	58	51
Denmark <i>b</i>	0.1	0.1	0.1	0.1	0.1	0.1	16	20	16	21	18	14
Germany.....	7.4	7.5	7.5	7.5	7.2	7.2	1,180	1,170	1,069	1,188	1,030	682
Holland.....	0.4	*0.4	*0.4	0.4	0.4	0.4	54*	*70	63	87	91	44
Belgium <i>c</i>	0.6	0.6	0.5	0.6	0.5	0.5	159	126	101	151	170	92
France.....	3.7	3.8	3.8	3.8	3.7	3.7	445	475	471	436	518	411
Austria.....	2.7	2.8	2.7	2.7	2.7	2.7	348	361	353	307	352	232
Hungary.....	1.3	*1.3	1.3	1.3	1.3	1.3	126	*118	114	131	110	84
Italy.....	0.5	0.5	0.5	0.5	0.5	0.5	26	*24	23	30	29	28
Continent.....	24.7	25.1	24.8	24.7	23.8	2.20	3,201	3,221	2,971	3,235	3,064	2,101
United King'dm	1.3	1.3	1.2	1.3	1.3	1.3	234	262	174	243	200	227
Tot. Europe.	26.0	26.4	26.0	26.0	25.1	23.3	3,555	3,483	3,145	3,478	3,264	2,328
United States <i>e</i> ..	2.8	3.2	2.9	2.6	2.5	2.7	246	283	185	183	155	250
Canada <i>e</i>	0.5	0.5	0.5	0.5	0.5	0.5	55	68	45	53	41	d52
Australasia.....	0.1	0.1	0.1	0.1	0.1	0.1	16	*19	22	17	16	21
World's Tot..	29.4	30.2	29.5	29.2	28.2	26.6	3,873	3,853	3,397	3,731	3,476	2,652

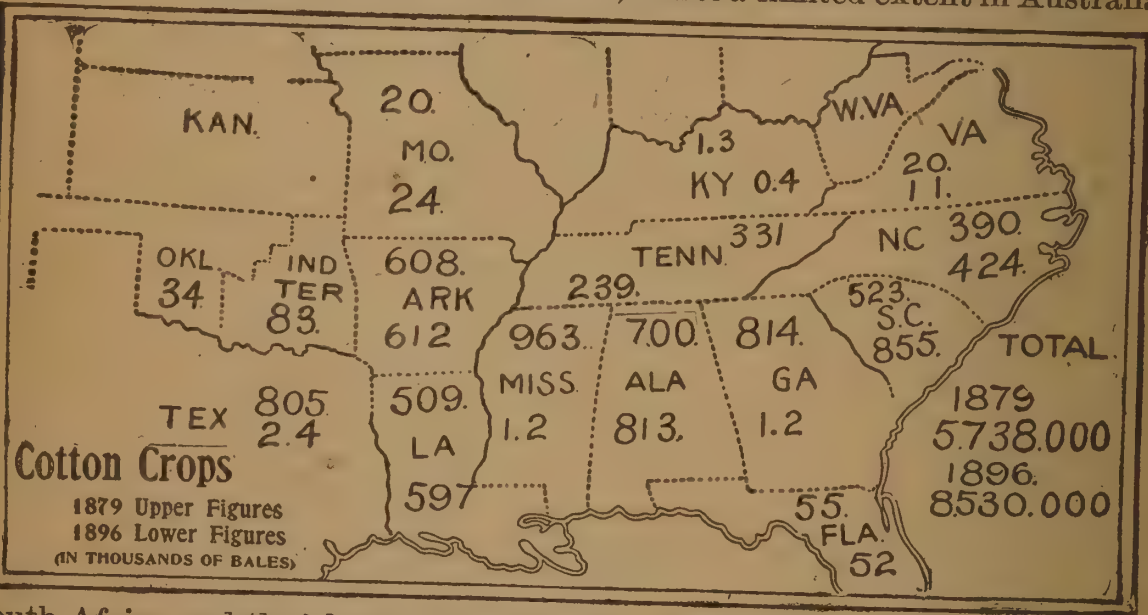
a Based on census of 1890, *b* of 1888, *c* of 1880, *d* average for 1883-'87, *e* census of 1890, *e* American Agriculturist's reports. *Estimated from commercial and private reports. All the figures official except as per notes *a*, *b*, *c*. An official return makes the Russian and Polish crop of '96 together 880,000,000 bushels.

The preceding table covers all Europe except Portugal, Switzerland, Greece, Turkey, Bulgaria, Servia and Roumania. For these countries the scattering and incomplete data at hand do not warrant an estimate of over 35,000,000 bushels as a full average crop.

The European potato crop of 1897 was much less than in former years. August returns indicated a very heavy shortage compared to the largest yield, but subsequently favorable weather improved the crop and the shortage will not be as large as was feared. The previous short potato crop in Europe was that of '91, which was about 1,200 million bushels less than a full production and 32 per cent less than the five years' average. Within the past six years, the variation between the largest and smallest potato product has been—in Holland 62 per cent, Russia 49 per cent and in Belgium the same, in Germany and the United States 42 per cent, in the United Kingdom 34 per cent and in France 20 per cent.

Cotton.

This great staple is cultivated mostly in the district between 20 degrees and 35 degrees north latitude. Within these lines lie the cotton sections of North America, Egypt, Northern Africa and Asia. South of the equator, it is grown for commercial purposes in Brazil, and to a limited extent in Australia,



South Africa and the islands of the Pacific. Among the earliest estimates of the world's production are those made by Levi Woodbury, Secretary of the Treasury, in 1836. The dates which he presented are as follows :—

EARLIEST RECORD OF WORLD'S COTTON CROPS.
[In millions of pounds.]

	1791	1801	1811	1821	1831	1834
United States.....	2	48	80	180	385	460
Brazil.....	22	36	35	32	38	30
West Indies.....	12	10	12	10	9	8
Egypt.....	..	..	..	6	18	25
Rest of Africa.....	46	45	44	40	36	34
India.....	130	160	170	175	180	185
Rest of Asia.....	190	160	146	135	115	110
Mexico, etc.....	68	56	57	44	35	35
Elsewhere.....	..	15	11	8	4	13
The world.....	470	530	555	630	820	900

Between 1791 and 1801 the invention of the cotton gin gave an impetus to the production of the United States, and by 1821 this country had assumed the position it has since held, that of the leading producer of the world.

Beginning with 1827 there is a record of the commercial movement of the crop each year in this country, which practically covers the entire production. This record, with the estimates of Secretary Woodbury, makes it possible to present the following statement, showing our production in periods ten years apart since 1791:—

Rapid growth of Production in United States.

	Pounds.		Pounds.		Pounds.		Pounds.
1791	2,000,000	1821	180,000,000	1851	1,421,413,340	1881	2,588,236,636
1801	48,000,000	1831	444,364,650	1860	1,934,545,603	1891	4,508,324,405
1811	80,000,000	1841	759,903,750	1871	1,384,084,494	1896	4,383,819,971

Taking such countries as have exact data, and for the others basing an estimate upon known facts of exports and assumed facts of domestic consumption, the following statement was presented in 1884 by Mr. Thomas Ellison, as about the average production at that period, in bales of a uniform weight of 400 pounds:—

An average world's crop.

	Bales.	Per cent.		Bales.	Per cent.
United States.....	7,035,000	55.95	Asiatic Russia.....	100,000	0.80
S. America & W. Indies..	300,000	2.38	Egypt.....	625,000	4.97
East Indies.....	2,500,000	19.48	Africa (except Egypt)...	375,000	2.99
China.....	1,425,000	11.33	Italy and Greece.....	10,000	0.08
Japan.....	132,000	1.05	Australasia.....	2,000	0.02
Turkey and Persia.....	120,000	0.95	Total for the world,.....	12,574,000	100.00

UNITED STATES COTTON CROPS BY STATES.

[Last three figures, 000's omitted.]

The following table gives the acreage as estimated by the Commercial and Financial Chronicle, and the generally accepted commercial crop by states:—

	1897	1896		1895		1894	
	Acres.	Acres.	Bales.	Acres.	Bales.	Acres.	Bales.
No. Carolina.....	936	892	500	762	384	953	465
So. Carolina.....	2,119	1,999	800	1,785	664	1,983	800
Georgia.....	3,797	3,548	1,300	3,112	1,079	3,346	1,300
Florida.....	294	294	60	235	48	248	60
Alabama.....	3,049	2,850	1,019	2,544	830	2,859	1,000
Mississippi.....	2,917	2,860	1,226	2,577	860	2,863	1,200
Louisiana.....	1,055	1,034	575	967	430	1,124	600
Tex. & Indian Ter....	5,348	4,952	2,248	4,382	1,990	4,974	3,276
Arkansas.....	1,506	1,434	700	1,258	620	1,429	850
Tennessee, etc.....	1,036	980	330	816	252	848	350
Total.....	22,057	20,843	8,758	18,438	7,157	20,627	9,901

In connection with the above showing, the following table carries the U.S. crop review back to 1880:—

	Acres.	Bales.		Acres.	Bales.
1893	19,684,000	7,550,000	1886	18,581,000	6,505,000
1892	18,067,000	6,700,000	1885	18,379,000	6,576,000
1891	20,714,000	9,035,000	1884	17,426,000	5,706,000
1890	20,809,000	8,653,000	1883	16,780,000	5,713,000
1889	20,172,000	7,311,000	1882	16,276,000	6,950,000
1888	19,362,000	6,938,000	1881	16,851,000	5,456,000
1887	18,962,000	7,046,000	1880	16,123,000	6,606,000

The more a man talks, the less he thinks.

COTTON PRICES FOR A SERIES OF YEARS.

The price of middling upland cotton in New York, at the close of each month since September, 1890, is as follows, in cents per pound:—

	1896-7	1895-6	1894-5	1893-4	1892-3	1891-2	1890-1
September.....	8 7-16	8 7/8	6 7-16	8	7 5/8	8 11-16	10 7/8
October.....	7 15-16	8 9-16	5 13-16	8 3-16	8 5-16	8 3/8	9 15-16
November.....	7 11-16	8 5/8	5 13-16	8 1/8	10	8 1/8	9 7-16
December.....	7 1/8	8 1/4	5 11-16	7 13-16	9 7/8	7 15-16	9 3-16
January.....	7 5-16	8 1/4	5 11-16	8 1-16	9 1/2	7 1/2	9 5-16
February.....	7 5-16	7 13-16	5 5/8	7 3/4	9 1/4	7 1-16	9
March.....	7 5-16	7 7/8	6 5-16	7 11-16	8 5/8	6 3/4	9
April.....	7 3/4	8 1-16	6 15-16	7 1/2	7 13-16	7 1/4	8 7/8
May.....	7 3/4	8	7 5-16	7 1/4	7 11-16	7 3/8	8 7/8
June.....	7 3/4	7 1/2	7	7 1/4	7 7/8	7 7-16	8 3/8
July.....	8	7 7-16	7	7	8 1-16	7 1/2	8
August.....	8	7 7/8	8 3-16	6 7/8	7 5/8	7 1/8	8 1/8

AVERAGE PRICES 1847 TO 1890, CROP YEAR ENDING AUGUST 31.

[As compiled by Latham, Alexander & Co., in "Cotton Movement."]

Cents.	Cents.	Cents.	Cents.
1889-90 11.53	1878-79 10.83	1867-68 24.85	1856-57 13.51
1888-89 10.71	1877-78 11.28	1866-67 31.59	1855-56 10.30
1887-88 10.27	1876-77 11.73	1865-66 43.20	1854-55 10.39
1886-87 10.25	1875-76 13.	1864-65 83.38	1853-54 10.97
1885-86 9.44	1874-75 15.	1863-64 101.50	1852-53 11.02
1884-85 10.54	1873-74 17.	1862-63 67.21	1851-52 9.50
1883-84 10.64	1872-73 18.15	1861-62 31.29	1850-51 12.14
1882-83 10.63	1871-72 20.48	1860-61 13.01	1849-50 12.34
1881-82 12.16	1870-71 16.95	1859-60 11.00	1848-49 7.55
1880-81 11.34	1869-70 23.98	1858-59 12.08	1847-48 8.03
1879-80 12.02	1868-69 29.01	1857-58 12.23	

The following table gives the average production and exportation of cotton in ten-year periods from 1841 to 1890, and annually from 1891 to 1896.

	Production, lb.	Exports, lb.	% ex.		Production, lb.	Exports, lb.	% ex.
1841-50	1,013,706,315	739,182,698	72.9	1892	3,352,658,458	2,212,115,126	66.0
1851-60	1,656,207,661	1,118,106,790	67.5	1893	3,769,381,478	2,683,282,325	71.2
1865-70	1,297,745,903	860,437,420	66.3	1894	5,036,964,409	3,517,533,109	69.8
1871-80	2,183,174,113	1,493,829,284	68.4	1895	3,592,416,851	2,335,226,385	65.0
1881-90	3,265,602,235	2,203,787,394	67.5	1896	4,397,198,565	3,103,754,949	70.5
1891	4,506,575,984	2,935,219,811	65.1				

Only in recent years have imports of raw cotton been on a scale of any special importance. That now purchased abroad is chiefly a long staple secured in Egypt. A year ago strenuous efforts were made in congress to secure a duty on foreign cotton, in order to check the importation, but this finally failed. Our imports of cotton goods are liberal and apparently increasing slowly. Our exports of finished cotton and manufactures of cotton show fair growth, but ought to be very much larger than they are.

IMPORTS COTTON AND FOREIGN TRADE IN COTTON MANUFACTURES.

	Imports, Cotton, Pounds.	Imports, Cotton Manuf'res.	Exports, Manuf'res.		Imports, Cotton, Pounds.	Imports, Cotton Manuf'res.	Exports, Manuf'res.
1888-89	7 973,039	\$26,805,942	\$10,212,644	1893-94	27,705,949	\$22,346,557	\$14,340,886
1889-90	8,606,049	29,918,055	9,999,277	1894-95	49,332,022	33,196,625	13,789,810
1890-91	20,908,817	29,712,624	13,604,857	1895-96	55,350,520	32,437,504	16,837,396
1891-92	28,663,769	28,323,841	13,226,277	1896-97	51,898,926	34,429,363	21,037,678
1892-93	43,367,952	33,560,293	11,809,355				

Speech is silver, silence is golden.

The Hay Crop and Market.

No crop is more universal to every country in the whole land than hay. When the fact is recognized that the annual crop of the U S has a value of \$400,000,000 to \$500,000,000, none other is worthy of more consideration on the part of the farmer, to see that the land devoted to it receives proper care, and the product harvested, housed and marketed in the best way. Next to corn, no crop shows such money value, not excepting wheat and cotton. The area annually devoted to the hay crop is 45 to 50 million acres, compared with 80 millions and upward in corn, 35 to 38 in wheat and 22 to 25 millions in cotton. The area given over to the hay crop has nearly doubled in the last 20 years, a rate of gain much more rapid than in some other great staples. Sixty-five million tons may be called a full crop, only an occasional year approaching that. The figure named has been exceeded only twice—in 1893, again in 1897, when the total yield approximated 67,000,000 tons, according to *American Agriculturist*, and 61 millions according to the government figures, liable to prove an underestimate. Taking the country at large, the average rate of yield per acre is about 1 1-4 tons, this covering a series of years, although of course, certain sections will make a much better showing. The average price on the farm at the opening of December, according to the department of agriculture, has in recent years remained close to \$8.50 per ton, but that of 1896 was decidedly lower at \$6.55.

Noteworthy changes have taken place in the crop in recent years, large areas throughout the central and western states, which formerly yielded liberally of wild or prairie grasses, being subdued, and seeded to timothy and clover. The average quality of prairie hay is changing and apparently for the worse. The highlands which produce the best upland prairie are being continually broken up and put under cultivation. A generation since prairie hay shipped from Illinois was as good as now comes from Kansas, Iowa and Minnesota. The markets of the central west, however, still depend largely upon prairie hay, the best grades selling well in comparison with tame grasses. The extensive yields of alfalfa in the Rocky mountain plateau and westward to the Pacific coast, farmers securing two, three and four crops in a season, are all consumed in the territories where grown, little of this description finding its way east of the Missouri river, hence affording no particular competition to the descriptions first named. The leading hay states include New York, Pennsylvania, Ohio, Illinois, Iowa, Kansas, South Dakota and California. Hay for shipment is compressed into the familiar bales, these differing in size. Within the past few years farmers show more disposition to bale for home use, in order to avoid loss on top and outside of stack when unprotected from storms. Timothy hay can be baled as soon as it is thoroughly dry. Prairie can be baled in the field direct; the sooner the work is done, the less loss from bleaching and rain. The usual length of bales for market is 3 ft for small and 4 for large; there is a popular size 30 in long. The cross section of the bale varies, 14 x 18 in, 16 x 18, 16 x 20, 17 x 22, 18 x 22; weights 75 to 160 lbs.

Hay is not a surplus crop, all being required at home. Farmers in the older middle and eastern states secure higher prices through nearness to big consuming markets, yet are obliged to face some competition from prairie hay shipped directly to the east from sections west of the Mississippi river, particularly in seasons of scarcity. The Chicago market prefers a small bale, weighing 70 to 90 lbs, St Louis takes a little heavier bale, while in New York large bales are the rule, these weighing 200 lbs and over. Baled hay is in the sixth class of the published freight tariffs, and generally pays 2 to 5c

Plain living, but high thinking.

per 100 lbs more than grain. Efforts on the part of the trade to establish a uniform scale for grading hay are meeting with only moderate success; many of the important cities observe rules of their own. The national hay dealers association is endeavoring to induce all the leading markets to adopt its rules for grading. Straw is usually marketed in large bales, the price varying greatly, according to brightness and other attraction, and the character of a somewhat irregular demand. To secure best figures, rye, wheat and oat straw should be reasonably clean, possessing good color, sound and well baled. There is a market for long, straight rye straw, if carefully pressed in bundles, and bright.

Our foreign trade in hay is a small affair. When the English crop is short, moderate quantities are sent abroad, providing ocean freights are reasonable. These vary considerably, \$2.50 to \$4.75 per long ton. Our exports, insignificant at best, have increased some in recent years; from 10,000 to 12,000 tons in the early 80's, to 50,000 and 60,000 tons annually the last few years. These are more than offset, however, by imports from Canada of 100,000 to 300,000 tons annually. The rate of duty, formerly \$2 per ton, was doubled last summer, and the present rate of \$4 serves to shut out considerable quantities of Canadian hay which otherwise would cross the border. In considering the course of prices a short year, it is always necessary to recognize the fact of the rapid development of forage crops, which in seasons of hay plenty are neglected. When early summer points to an indifferent yield of hay, farmers put in an increased acreage of Hungarian, the millets, fodder corn, field peas, etc.

There was little incentive to put in a big acreage of catch crops in 1897, as it was early apparent the yield of hay would prove large, subject to a continuance of favorable weather conditions. A phenomenally heavy tonnage was finally secured. But the quality was uneven, enormous quantities being badly damaged. The 1897 hay crop, from about 44,000,000 acres, approximated 67,150,000 tons, an average rate of yield of a little more than 1 1-2 tons per acre. The crop of the central west, while not as good as expected, was above the average in yield, but below in quality. Excessive rainfall was the direct cause of serious damage throughout much of New England, New York, and other middle and eastern states. Yet a liberal amount of good quality was secured, prices covering a wide range dependent upon condition, but averaging low.

The officers of the national hay association include E. L. Rogers, Philadelphia, president; H. B. Burns, Buffalo and A. E. Clutter, Lima, O, vice presidents; with F. F. Collins of Cincinnati, secretary and treasurer. The rules governing hay and straw adopted by the national hay association include the following specifications for the leading grades:

No 1 Timothy Hay—Shall be timothy not more than one-fifth mixed with other tame grasses, properly cured, good color, sound and well baled.

No 2 Timothy Hay—Shall be timothy not good enough for No 1, not over one-third mixed with other tame grasses, fair color, sound and well baled.

No 1 Clover Mixed Hay—Shall be timothy and clover mixed, with at least one-half timothy, good color, sound and well baled.

No 2 Clover Mixed Hay—Shall be timothy and clover mixed, with at least one-third timothy, reasonably sound and well baled.

No 1 Clover Hay—Shall be medium clover, not over one-twentieth other grasses, properly cured, sound and well baled.

Choice Prairie Hay—Shall be upland hay, of bright color, well cured, sweet, sound and reasonably free from weeds.

No 1 Prairie Hay—Shall be upland, and may contain one-quarter midland of good color, well cured, sweet, sound and reasonably free from weeds.

No 2 Prairie Hay—Shall be upland of fair color, or midland of good color, well cured, sweet, sound and reasonably free from weeds.

He that blows dust fills his own eyes.

In the subjoined tables, the figures covering acreage, crop yields and values are mostly taken from the returns of the department of agriculture. The *American Agriculturist's* estimate of the 1897 crop is somewhat larger, 67,150,000 tons, from 43,978,000 acres, an average yield of 1.53 tons per acre.

HAY CROP OF THE UNITED STATES, FOREIGN MOVEMENT AND PRICES

	Acres. Millions.	Yield.		Value.		^b For'n trade Thou. tons.		Prime timothy per ton.					
		Per acre Tons.	Total. Millions. tons.	Dec. f'm price.	Crop. Millions.	Imports.	Exports.	New York.			Chicago.		
								Mar. 1.	Aug. 1.	Dec. 1.	Mar. 1.	Aug. 1.	Dec. 1.
1897	43	1.42	61			120	62	\$16	\$16	\$16	\$10	\$11	\$10
1896	43	1.37	59	\$6.55	\$388	303	59	20	20	17	13	12	11
1895	44	1.1	47	8.35	393	202	47	16	22	18	11	15	14
1894	48	1.1	55	8.54	468	87	54	17	18	16	11	12	11
1893	50	1.3	66	8.68	571	104	33	18	19	18	12	11	11
1892	^a	1.2	^c 57	8.49	^c 484	80	35	18	19	18	12	12	^c 13
1891	^a	1.2	^c 53	8.39	^c 445	58	28	13	18	17	10	12	15
1890	^a	1.2	^c 50	7.74	^c 387	125	36	17	16	14	9	11	11
1889	^a	1.3	^c 48	7.88	^c 378	105	22	18	18	17	10	11	11
1888	39	1.2	47	10.76	408	100	18	18	20	19	13	15	12
1887	38	1.2	41	9.34	413	78	14	16	17	18	10	15	15
1886	37	1.2	42	7.36	353	92	13	19	17	18	12	12	11
1885	40	1.3	45	9.15	390	161	11	20	23	19	13	15	12
1884	39	1.3	48	8.17	396	119	17	18	22	19	11	13	12
1883	36	1.3	47	8.21	385	98	13	17	18	18	12	13	11
1882	32	1.2	38	9.76	371	86	11	20	20	18	14	15	12
1881	31	1.1	35	11.82	415	32	13	24	20	22	16	14	17
1880	26	1.2	32	11.62	372	27	14	17	22	24	13	16	16
1877	25	1.2	32	8.50	272	—	7				9	10	11
1875	24	1.2	28	12.21	342	—	7						
1873	22	1.1	25	13.60	340	—	5						
1870	20	1.2	25	13.56	339	—	7						
1869	19	1.4	26	12.78	338	—	—						
1868	22	1.1	26	13.46	352	—	6						
1867	20	1.3	26	14.49	373	—	5						
1866	18	1.2	22	14.58	318	—	9						

^a No estimates for year named. ^b Year ended June 30, therefore applies to crop of preceding year. ^c Commercial estimates.

Life of a Patent.

A patent is good for seventeen years, and gives exclusive right to make, use and sell the invention. Patent rights may be transmitted by inheritance or sold like other property.

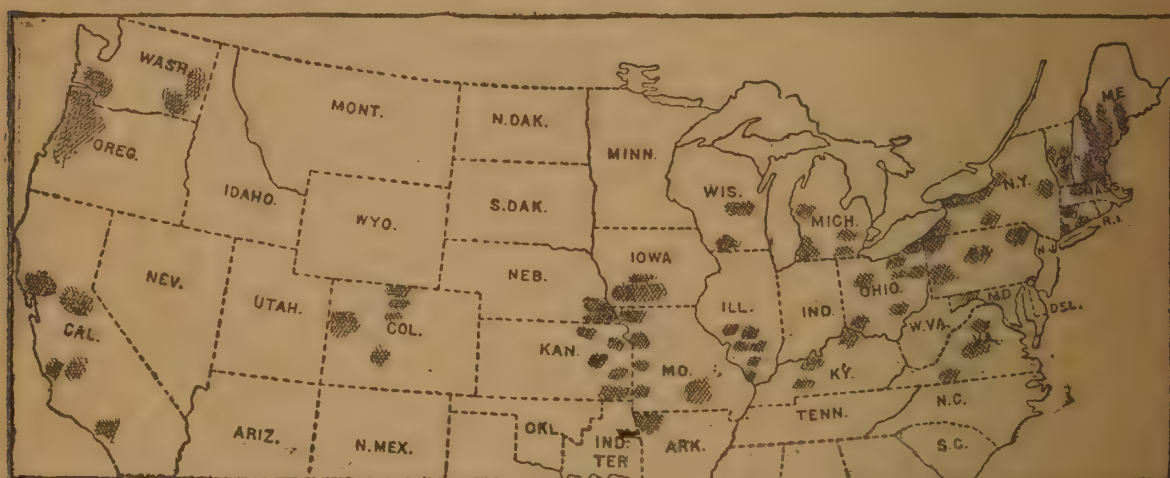
If it appears that the inventor, at the time of making his application, believed himself to be the first inventor or discoverer, a patent will not be refused on account of the invention or discovery, or any part thereof, having been known or used in any foreign country before his invention or discovery thereof, if it had not been before patented or described in any printed publication.

The receipt of letters patent from a foreign government will not prevent the inventor from obtaining a patent in the United States, unless the invention shall have been introduced into public use in the United States more than two years prior to the application. But every patent granted for an invention which has been previously patented by the same inventor in a foreign country will be so limited as to expire at the same time with the foreign patent, or, if there be more than one, at the same time with the one having the shortest unexpired term, but in no case will it be in force more than seventeen years.

The Apple Crop and Market.

Probably in no branch of agriculture have greater advances been made than in fruit growing. Comparing the old days when "book farmin'" was indifferently regarded, with to-day's progressive study of soil characteristics, fertilization, cultivation, and the use of insecticides and fungicides, marked changes have taken place. And nowhere more pronounced than in apple growing. The successful orchardist who raises apples for profit has long since left the ranks of those who pay little or no attention to the needed requisites indicated. On the other hand, he makes it a thorough business from the planting or grafting of the trees to the harvesting and marketing of the fruit.

While what is known as the commercial apple belt, producing the surplus crop for winter markets, has long been confined to a group of comparatively few states, marked progress has been made in recent years, and new and highly promising orchard sections developed. The old time "apple belt"



COMMERCIAL APPLE GROWING SECTIONS OF UNITED STATES.

includes New England, New York, Pennsylvania, Ohio and Michigan. The newer orchard sections of increasing prominence and importance, include the Ozark territory of southern Missouri and northern Arkansas, southwestern Iowa, eastern Nebraska, and Kansas, Colorado and the Pacific coast, where some of the finest specimens are found. These states, together with isolated sections elsewhere, are giving intelligent attention to apple growing, where climate and soil are right.

In the distribution of the winter apple crop, the eastern states, Canada and Michigan have been, as a rule, largely drawn upon to make up deficiencies in the middle west and northwest. The crop of hard varieties suitable for winter use is deficient in some of the central states and in most of the southern. A general criticism applying to nearly all sections where temperatures are cool, is the fact that too much summer and autumn fruit is produced, finding indifferent outlet, often at unremunerative prices. In the same line, there is still urgent need of more intelligent work among orchardists in the care of trees and in battling insect and fungus pests in order to secure perfect fruit.

MARKETING THE CROP.

In the absorption of the apple crop through consumptive channels, the first to disappear is autumn fruit, and inferior to common stock generally, the poorest going to the cider mill, large quantities of better grade to evaporators. Prior to and following the harvest of winter varieties, there is inter-

ested buying on the part of country shippers and city dealers, entire orchards often being contracted long before the beginning of autumn. Farmers and orchardists now so generally understand practicable methods of storing and keeping fruit at home, that an important part of the crop is so cared for, this depending upon market conditions. The remainder is barreled and put away for later use, much of it in ordinary storage, and enormous quantities in the aggregate in cold storage plants in the large towns and cities, where equable temperatures just above the freezing point are maintained. Fruit can thus be kept almost indefinitely, and if properly selected and packed at the beginning of the season will emerge from the warehouse late in the winter or early spring in practically perfect condition. The generally recognized standards of winter apples include such varieties as Baldwin, Greening, Northern Spy, Spitzenburg and Russet. Among other popular and good selling apples in their season may be placed King, Pippin, Bellflower, Gravenstein, Jeniton and Winesap.

THE EXPORT TRADE IN WINTER APPLES

Has in recent years assumed such proportions as to be eminently important in the final distribution of the crop, and highly encouraging, meaning as it does, a very liberal outlet to foreign countries. The quantity of apples that can be thus shipped depends very largely upon the home crop and prices, and supplies of fruit abroad. When our crop is short and prices high, exports are restricted; on the other hand, during a recent season the United States and Canada together shipped 3,000,000 bbls apples, the bulk of these going to the United Kingdom, but an important part to northern Europe. One of the encouraging features of the situation is the growing demand latterly for apples, both fresh and evaporated, for Germany, Belgium, France and even Austria. Almost all the apples exported are in barrels, but experiments are being made in shipping in boxes; in fact, a considerable business in the latter is done each year on the Pacific coast, the Oriental trade favoring California, Oregon and Washington apples packed in boxes.

Among the best sellers in the foreign countries are Kings and Newtown Pippins, although the bulk of apples sent abroad comprise such standbys as Baldwins, Spies, Greenings, and Russets. Indiscriminate packing and shipping is a mistake too often made in exporting. It should be remembered that foreign buyers demand sound fruit well selected and properly packed; nothing else should be shipped abroad. Ocean freights on apples, Boston or New York to Liverpool, are usually 40 to 70c per bbl. Selling charges in Liverpool are close to 15c, this including dockage, town dues, insurance, advertising, sampling and labor in handling. In addition is the 5 per cent commission on sales. Suppose, for example, a parcel of 100 barrels Baldwins, well packed, sells at 16 shillings per bbl, equal to about \$3.85; 5 per cent commission on this would be 19c, to which may be added the 15c, total about 34c, this representing charges for selling a barrel of apples after reaching Liverpool. As a rule, apples landing at English markets are sold at auction and quick disposition is made of the entire shipload, the fruit going in lots of 20 bbls and upward. Great Britain always has a small to moderate crop of apples; also imports fair quantities from northern Europe during the autumn, and in early spring Australia sends some apples to the mother country. But in the main, the chief dependence is on the United States and Canada, which ship freely during the winter season, or from October to March inclusive. Ocean freights on apples, Boston or New York to Hamburg, the leading German market, are usually 70 to 75c per bbl, occasionally as low as 60c. The ocean freight on evaporated apples has declined recently to the level of 15c to 20c per 100 lbs to both Hamburg and Bremen.

APPLES—FOREIGN MOVEMENT AND DOMESTIC PRICES.

Exports Apples from United States and Canada. [Last three figures, 000's, omitted.]										Winter Apples per barrel at wholesale at New York.			
Seas'n Sept. 1 May 1.	Barrels export'd from					Bbls. received at				Years tot. exports.	October 15	January 1.	March 1.
	N.York.	Boston.	Montre'l	Portla'd	Halifax.	Liver- pool.	London.	Glasgow	Various.				
1897-8*	—	—	—	—	—	308	97	111	82	598	\$1.75 @ 4.00	\$3.00 @ 4.50	?
1896-7	570	1,015	700	221	416	1,582	717	411	210	2,920	1.00 @ 1.75	1.00 @ 1.62	\$1.25 @ 2.50
1895-6	231	84	128	142	166	411	196	128	16	751	1.50 @ 1.75	1.50 @ 3.50	1.50 @ 4.55
1894-5	221	523	273	156	264	853	389	173	23	1,438	1.50 @ 2.50	2.25 @ 2.75	2.00 @ 6.00
1893-4	29	5	56	50	35	101	33	39	3	175	2.00 @ 2.50	3.75 @ 4.00	3.50 @ 5.55
1892-3	218	204	429	235	117	798	174	221	10	1,204	1.50 @ 2.50	2.50 @ 3.50	1.50 @ 3.50
1891-2	537	340	320	163	87	918	224	283	26	1,450	1.25 @ 1.75	1.25 @ 1.75	.75 @ 2.70
1890-1	77	23	182	80	89	252	117	81	1	451	1.00 @ 5.00	2.00 @ 6.00	2.00 @ 6.50
1889-90	170	133	163	122	54	419	128	116	14	678	1.50 @ 4.00	2.00 @ 4.00	2.50 @ 4.00
1888-9	475	382	291	146	95	790	279	272	65	1,407	1.00 @ 3.50	1.25 @ 2.50	.75 @ 2.00
1887-8	276	164	93	25	33	347	104	140	18	608	1.10 @ 2.25	1.25 @ 4.50	1.50 @ 3.50
1886-7	176	304	107	101	95	469	188	139	13	808	1.50 @ 2.50	2.00 @ 6.00	2.00 @ 4.00
1885-6	466	222	69	88	39	538	147	175	24	885	1.00 @ 2.00	1.37 @ 2.50	1.12 @ 2.00
1884-5	256	307	84	71	41	492	123	138	71	769	1.00 @ 1.75	1.75 @ 2.00	2.50 @ 3.20
1883-4	53	7	7	10	4	47	5	30	—	82	1.25 @ 3.25	3.00 @ 3.50	2.75 @ 4.20
1882-3	170	102	64	17	19	253	47	81	13	306	1.50 @ 3.00	2.00 @ 3.75	2.25 @ 4.55
1881-2	76	65	56	6	14	134	46	59	—	239	2.00 @ 4.00	2.00 @ 4.00	1.50 @ 4.00
1880-1	599	510	145	40	24	830	178	216	95	1,329			

* To Dec. 18.

ENORMOUS QUANTITIES OF DRIED APPLES

Largely in the evaporated form, are each year shipped to foreign countries, doing much to relieve the home markets. This class of business has never been on a firmer footing than now, those engaged in the trade catering in an intelligent manner to foreign requirements. Last year's exports were unprecedented at nearly 31,000,000 lbs. This was made possible by the low prices of fresh fruit from which the product was made, and the excellent reputation the goods enjoyed. The magnitude of the business is governed largely, but not wholly, by domestic prices, and when these are low exports are greatly stimulated. A large part of the goods shipped are dried on wood rather than zinc frames, this being a requisite in securing recognition in some of the European markets, notably that of Germany. After the empire just named, the Netherlands, France, Belgium and the United Kingdom are our best customers, with, of course, more or less fruit going from Pacific coast ports to the Orient and southern hemisphere.

EXPORTS, DRIED APPLES FROM UNITED STATES.

Year ended June 30.	Pounds.	Total value.	Aver. value.
1897	30,883,921	\$1,356,578	4.39c.
1896	26,691,963	1,340,507	5.02
1895	7,085,946	461,214	6.50
1894	2,846,645	168,054	5.90
1893	7,996,819	482,085	6.02
1892	26,042,063	1,288,102	4.57
1891	6,973,168	409,605	5.87
1890	20,861,462	1,038,682	4.98
1889	22,102,579	1,201,070	5.43
1888	11,803,161	812,682	7.73
1887	8,130,396	413,363	5.08
1886	10,473,183	548,434	5.23
1885	18,416,573	1,062,850	5.77

Sickness of body may be health of soul.

IN PACKING APPLES

For domestic markets, honesty of purpose, proper selection, uniform size of package and good judgment in character of the work bring best results. The fruit should run uniform throughout the barrel, both in quality and size; should be closely and tightly packed, without undue bruising, one end of the barrel nicely faced, the package well coopered, and stenciled with the name of the variety and quality. No 1 apples should prove just what they claim, the barrel containing no No 2 fruit. In order to ship safely and satisfactorily, apples must be packed tight.

THE APPLE CROP OF 1897,

Taking the country at large, was very much less than that of any recent year. Due to over-production in 1896 throughout most of the commercial belt, it was largely a rest period in 1897, and the total yield was estimated at 37,436,000 bbls against nearly 70 million the previous year, 61 in '95, 58 in '94 and 57 million in '89, the U S census year. The crop proved shortest in such old, reliable apple-producing sections as New England, New York, Pennsylvania, Ohio and Michigan, the shortage extending across the line into Canada. In the central west and southwestern states an excellent promise early in the year gave way in August and September, through extensive and excessive drouth and heat and consequent serious loss, but still leaving a quantity of apples for the market liberal in the aggregate. The quality of the 1897 crop, as a whole, was deficient, many orchards showing results of neglect in the matter of proper spraying to hold insect pests in check.

THE APPLE CROP BY STATES, WITH COMPARISONS.

	1897 Barrels.	1896 Barrels.	1895 Barrels.	1894 Barrels.	*1889 Barrels.
Maine	475,000	2,419,000	790,000	1,980,000	1,228,000
New Hampshire.....	355,000	2,587,000	985,000	1,974,000	1,313,000
Vermont.....	250,000	1,072,000	550,000	946,000	505,000
Massachusetts.....	330,000	1,923,000	858,000	1,320,000	676,000
Connecticut.....	290,000	1,244,000	785,000	990,000	798,000
New York.....	1,410,000	8,217,000	3,312,000	5,918,000	3,398,000
Pennsylvania.....	1,466,000	6,788,000	4,990,000	4,264,000	3,021,000
Michigan.....	1,360,000	7,973,000	3,750,000	5,815,000	5,261,000
Ohio.....	1,700,000	4,715,000	5,160,000	2,871,000	5,515,000
Indiana.....	2,100,000	4,320,000	3,307,000	1,086,000	3,514,000
Illinois.....	2,900,000	4,100,000	3,792,000	1,991,000	3,840,000
Missouri.....	3,100,000	4,487,000	3,864,000	1,974,000	3,479,000
All others.....	21,700,000	20,034,000	28,400,000	26,500,000	24,694,000
Total U. S.....	37,436,000	69,879,000	60,543,000	57,629,000	57,242,000

* United States census of 1890.

LEADING APPLE COUNTIES OF THE UNITED STATES AND CANADA.

ARKANSAS—Benton □, Carroll □, Madison □ and Washington □.

CALIFORNIA—Sonoma □, Santa Cruz □, Los Angeles □, Eldorado □, Napa □, Santa Clara □.

COLORADO—Fremont □, Jefferson □, Boulder □, Larimer □, Mesa □, Delta □, Montrose □.

CONNECTICUT—Fairfield □, Litchfield □, Hartford □, New Haven □.

ILLINOIS—Madison □, Marion □, Shelby □, Union □, Williamson □, Wayne □, Washington □.

IOWA—Adams □, Clarke □, Decatur □, Fremont □, Mills □, Montgomery □, Page □, Ringgold □, Taylor □, Union □, Warren □.

KANSAS—Labette □, Cherokee □, Leavenworth □, Bourbon □, Brown □, Douglas □, Shawnee □, Douglas □.

KENTUCKY—Meade □, Warren □, Hardin □, Campbell □.

MAINE—Oxford □, Kennebec □, Cumberland □, Penobscot □, Somerset □, York □.

MARYLAND—Baltimore □, Frederick □, Carroll □, Montgomery □.

MASSACHUSETTS—Worcester □, Middlesex □, Franklin □, Berkshire □, Essex □.

MICHIGAN—Berrien □, Oakland □, Lenawee □, Kent □, Allegan □, Van Buren □, Cass □, Saint Joseph □.

MISSOURI—Nodaway □, Jasper □, Vernon □, Greene □, Andrew □, Jackson □, Howell □, Clay □, Texas □, Webster □.

NEBRASKA—Otoe □, Richardson □, Nemaha □, Cass □, Johnson □, Pawnee □.

NEW HAMPSHIRE—Grafton □, Merrimack □, Hillsboro □, Rockingham □, Carroll □.

NEW YORK—Niagara □, Monroe □, Erie □, Wayne □, Orleans □, Chautauqua □, Ontario □, Steuben □, Oswego □, Albany □.

OHIO—Washington □, Ashtabula □, Columbiana □, Cuyahoga □, Clermont □, Stark □.

OREGON—Clackamas □, Marion □, Linn □, Yamhill □, Washington □.

PENNSYLVANIA—Allegheney □, Crawford □, Erie □, Butler □, Susquehanna □, Westmoreland □, Clinton □.

VERMONT—Windsor □, Windham □, Orange □, Washington □, Rutland □.

VIRGINIA—Augusta □, Rockingham □, Albemarle □, Patrick □, Rappahannock □.

WASHINGTON—Walla Walla □, Columbia □, Clarke □, Whitman □, Spokane □.

WISCONSIN—Fond du Lac □, Outagamie □, Rock □.

ONTARIO—Brant □, Dundas □, Durham □, Elgin □, Essex □, Frontenac □, Glengary □, Grenville □, Haldemant □, Halton □, Huron □, Kent □, Lambton □, Leeds □, Lincoln □, Middlesex □, Norfolk □, Northumberland □, Ontario □, Oxford □, Peel □, Perth □, Prince Edward □, Stormont □, Waterloo □, Welland □, Wellington □, Wentworth □ York □.

QUEBEC—Chateaugay □, Drummond □, Huntington □, Iberville □, Richmond □.

NOVA SCOTIA—Annapolis □, Halifax □, Hants □, Kings □.

Tobacco.

THE CIGAR LEAF CROP

is closely and accurately reported by *American Agriculturist*. The Department of Agriculture's cigar leaf returns are grossly in error. The season of 1897 was so wet in New England as to be the worst ever known, was poor in New York, fair in Pennsylvania, good in Ohio and fine in Wisconsin. Considerable cigar leaf is being grown in Florida and Texas, and experiments in California indicate a possible large expansion of the crop in these states, which may seriously compete with the old seedleaf section. The largest and finest crop was that of 1892.

NUMBER OF PLANTERS AND ACREAGE.

	Number of growers.			Number of acres.		
	1897	1896	1892	1897	1896	1892
New Hampshire.....	22	29	32	70	43	85
Vermont.....	76	48	69	206	120	164
Massachusetts.....	1,162	953	1,165	3,616	2,849	3,666
Connecticut.....	2,925	2,970	3,353	9,357	8,262	9,851
Total New England...	4,185	4,000	4,619	13,249	11,274	13,766
New York.....	*2,956	2,324	4,175	5,800	4,535	12,272
Pennsylvania.....	*10,862	9,500	13,425	22,653	17,463	30,000
α Ohio.....	*7,200	7,500	8,000	16,200	19,000	25,010
Wisconsin.....	*3,700	2,800	5,160	18,900	10,500	20,000
Florida.....	*1,000	680	6	6,000	4,300	10
Texas.....	*75	42	0	625	300	0
Total.....	29,978	26,846	35,385	83,427	67,372	101,058

* Partly estimated. α Includes only seedleaf sections.

A light purse is a heavy curse.

CIGAR LEAF TOBACCO—YIELD PER ACRE AND TOTAL CROP.

	Pounds per acre.			Yield (cs of 350 lbs.)		
	1897	1896	1892	1897	1896	1892
New Hampshire.....	1,600	1,575	1,634	320	222	397
Vermont.....	1,600	1,600	1,624	942	548	761
Massachusetts.....	1,500	1,700	1,633	15,497	13,838	17,104
Connecticut.....	1,400	1,750	1,664	37,428	41,338	47,486
Total New England...	1,431	1,736	1,650	54,187	55,946	65,748
New York.....	1,450	1,350	1,882	24,029	17,492	43,381
Pennsylvania.....	1,750	1,500	1,000	113,265	74,841	85,714
Ohio.....	850	800	750	39,343	43,429	53,600
Wisconsin.....	1,400	1,000	892	75,600	30,000	51,428
Florida.....	500	500	550	8,571	6,142	
Texas.....	600	600		1,070	514	
Aggregate.....	1,326	1,183	10,036	316,065	228,364	299,871

HEAVY LEAF AND MANUFACTURING TOBACCOS.

The palpable errors in Department of Agriculture returns of this crop lead us to seriously question them. But being the only data now at hand these returns are here used. Should the interest and patronage war-rant, *American Agriculturist* would report this crop as fully as it does cigar leaf. The department's figures for the heavy leaf districts are as follows, its Ohio returns including all tobacco grown in that state. Yield and total crop are in pounds.

	Acres.		Yield per acre.		Total crop.	
	1897	1896	1897	1896	1897	1896
Maryland.....	15,105	15,995	700	456	10,573,500	9,277,100
Virginia.....	82,802	92,002	610	625	50,509,220	57,961,260
North Carolina.....	104,962	134,567	550	422	57,729,100	68,629,170
Alabama.....	2,276	2,147	450		1,024,200	1,009,090
Arkansas.....	3,009	2,950	475	800	1,429,275	1,327,500
Tennessee.....	40,014	53,351	540	555	21,607,560	35,211,660
West Virginia.....	4,198	5,119	800	669	3,358,400	3,685,680
Kentucky.....	127,884	196,745	610	700	78,009,240	143,623,850
Ohio.....	30,411	32,012	750	747	22,808,250	23,688,880
Indiana.....	8,931	11,907	620	705	5,537,220	8,130,760
Illinois.....	3,707	3,902	500	1,000	1,853,500	2,497,280
Missouri.....	7,935	10,580	650	1,000	5,157,750	7,406,000
Total.....	431,234	561,277			259,608,215	362,430,230

INCREASE IN THE TOBACCO BUSINESS.

	1863	1873	1883	1893	1897
Manufactured tobacco, millions of lbs.	24	115	170	264	291
Cigars, millions.....	199	1,780	3,228	4,814	4,063
Cigarettes, millions.....	0	27	640	3,660	5,041
Internal revenue, millions of dollars...	3	34	42	31	31
Duties paid, millions of dollars.....	?	?	1	15	00

During the calendar year 1896, 76 million pounds of leaf were used in making cigars, and 19 millions in cigarettes, a total of 95 million pounds, compared to 85 millions in 1887. The weight of cigars, cigarettes, and manufactured tobacco made in 1896, was 508 million pounds, compared to 288 millions in 1887.

Gold is a good key, except for the gate of Heaven.

SPECIAL MONEY CROPS.

The Hop Crop and Market.

After three years of extraordinary low prices, the hop market at home and abroad is working into better shape. Over-production in 1894 and '95 caused the lowest values on record. The '96 crop was of moderate proportions, so that with the increased consumption of beer, stocks of old hops were apparently reduced to normal proportions by Sept. 1, 1897, when the new or '97 crop came on the market. Since that date, values have gradually advanced, and fluctuations have been much less than usual. The danger now is that these better prices will lead to over-production in 1898. In the United States, hops are grown in a small way in almost every state, but two-thirds of the commercial crop is raised on the Pacific coast, the rest in central New York. Formerly these conditions were reversed, but it is now evident that Washington, Oregon and California can produce hops so much more cheaply than New York state, that the former region will probably continue to increase its area and production at the expense of the eastern and older producing section. For the same reason, the area under hops in Great Britain has been greatly reduced during the past ten years, until for 1897 it was 50,863 compared to 70,127 acres in '86. A moderate area is devoted to hops in Holland, Belgium, France and the neighboring province of Alsace in western Germany, but the bulk of the European crop is grown in central and eastern Germany, especially Bavaria and also Austria. The wide variation in total production, from one year to another, is mainly due to causes affecting the yield per acre, though marked reductions in the area devoted to this crop are noticeable at times.

Hops are grown in other parts of the world for local needs. Australasia's average crop is only 12,000 bales, grown on about 2,000 acres, and she is a large importer. About 8,000 acres of hops were grown in Russia, in the provinces of Keiff and Volhynia, in '93. The treaty between Russia and Germany, which does not expire until 1904, reduced the duty on hops coming from Germany into Russia from 20c to 7c per lb. This and other causes reduced the area under hops in this region to only 3,240 acres, in '96 yielding about 8,000 bales, which sold at an average of 6c per lb. The '97 crop in this region was grown on only 2500 acres.

HOP CROP OF THE WORLD.

Expressed in thousands of bales of 180 lbs. net, the American standard size.

CROP OF	1897	1896	1895	1894	1893	1892	1891	1890
Germany.....	310	353	368	404	130	300	269	164
Austria.....	99	136	95	109	74	79	72	65
France.....	38	43	42	38	33	41	36	54
England.....	256	281	343	395	257	257	272	176
Total.....	703	813	848	946	494	680	649	459
United States.....	200	175	292	320	268	223	208	205
Aggregate.....	903	988	1140	1266	762	903	857	664

a American Agriculturist's preliminary estimate. This journal is an accepted authority on America's hop crop, but it frankly admits that this crop is one of the most difficult to report upon for obvious reasons. The figures of each crop are subject to final revision at the close of each year when data are available of the interior and foreign movement.

Who pleasure gives, shall joy receive.

ACREAGE IN HOPS (so far as ascertainable).

	1897	1896	1895	1894	1893	1892	1891	1890
England	50,863	54,207	58,940	59,535	57,564	56,259	56,142	53,961
France.....	6,122	6,428	7,939	7,264	6,921	6,728	6,592	6,968
Germany	98,767	101,709	103,923	104,241	103,901	107,282	107,791	110,681
Austria.....	35,108	36,431	39,765	38,048	37,626	36,857	36,679	38,708
Total Europe.....	190,860	198,785	210,567	209,088	206,012	207,126	207,204	210,318
New York	19,735	22,190	26,238	30,177	32,300	33,100	34,600	35,000
Washington.....	3,000	4,500	5,700	10,000	9,000	8,000	6,101	4,338
Oregon.....	9,000	12,000	16,500	15,000	10,000	6,000	3,900	2,620
California.....	6,000	7,200	8,500	8,600	8,000	7,000	5,340	4,015
Total United Sts..	37,735	45,890	56,938	63,777	59,300	54,100	49,941	45,973
World's aggregate...	228,595	244,675	267,505	272,865	265,312	261,226	257,145	256,291

Yield per acre kiln-cured packed hops: Europe, 400 to 750 lbs., say 500 lbs. in good year; England, 905 lbs. in '97, 936 lbs. in '94 and 888 lbs. as the official average for the years 1886-95; New York, 400 to 1,200 lbs., say 900 lbs.; Pacific coast, 600 to 2,000 lbs., say 1,200 as a fair average in a good year. Germany's ten-year average is 510 lbs. per acre, largest crop averaged 730 lbs. per acre in 1894, lowest 260 lbs. per acre in 1893.

HOP CROPS AND PRICES.

This table shows, for many years, the bales of hops produced each season in the United States and in Europe (including England), the total constituting about 95% of the world's supply. It also gives the number of bales of each crop exported from the United States, and the imports of foreign hops into the United States, with average yearly United States export prices and Hamburg import values.

In thousands of bales of 180 lbs. net.						Average prices, in cts. per lb.	
c Crop of	U. S. crop.	Europe crop.	Total crop.	U. S. exports.	U. S. imports.	a U. S.	bHamburg
1897	209	695	895				
1896	175	813	988	63	17	10.2	
1895	292	848	1,140	93	15	8.8	
1894	320	946	1,266	97	17	10.7	
1893	268	494	762	97	5	22.0	
1892	223	680	903	63	15	23.7	
1891	208	649	815	70	13	19.3	26
1890	205	459	664	49	21	26.6	26
1889	218	717	935	42	36	29.0	20
1888				69	31	22.4	21
1887				39	28	17.4	19
1886				1	103	21.0	21
1885				76	15	12.5	24
1884				35	9	19.7	33
1883				75	4	24.1	50
1882	125	387	512	43	12	71.8	40
1879	95	379	474	54		26.3	26
1874	110	428	538	17		41.9	41
Av. '81-90	193	746	939			H 50.1	L 19
'85-89	190	773	963			H 20.7	L 19
'81-85	196	720	916			H 50.1	L 25
'76-80	152	647	799			H 30.0	L 21

a Average annual export value (in cents per lb.) of hops shipped from the United States. b Average annual value (in cents per lb.) of all hops imported into Hamburg, Germany. H, Highest average annual import value of hops imported into Hamburg, during the period noted; L, lowest. c Observe that the year given is that in which the crop was produced; therefore, exports from United States of the '97 crop will not be known until July, '98.

Beauty and folly are old companions.

COMMERCIAL AGRICULTURE.

EXPORT TRADE IN AMERICAN HOPS.

Showing exports of domestic hops from United States each month for nine years, also imports and values. In thousands of pounds, last three figures (000's) omitted.

Crop year.	1897-8	1896-7	1895-6	1894-5	1893-4	1892-3	1891-2	1890-1	1889-90
July.....	209	167	389	416	1,113	15	268	151	55
August.....	275	116	283	346	635	141	127	510	37
September.....	568	194	234	260	1,008	48	506	1,220	78
October.....	609	1,811	1,589	1,412	1,338	1,484	1,260	2,388	1,541
November.....		2,771	2,268	2,300	4,108	2,300	2,596	2,552	1,289
December.....		2,216	4,400	3,993	3,691	2,267	4,923	545	2,686
January.....		1,445	2,734	2,831	1,931	1,577	1,966	496	860
February.....		974	1,477	2,030	963	894	501	210	390
March.....		994	1,842	1,811	699	369	315	292	262
April.....		331	811	895	838	753	116	125	167
May.....		138	392	547	544	418	16	144	69
June.....		268	347	682	603	1,098	11	102	107
Tot'l exports, 12 m.		11,425	16,765	17,523	17,473	11,367	12,605	8,736	7,541
" imports, "		3,018	2,772	3,134	828	2,691	2,506	4,020	6,540
Re-exports, "		57	32	93	135	85	176	223	418
Net imports		2,961	2,740	3,041	693	2,605	2,330	3,797	6,121
In bond June 30...		8	161	154	139	168	222	280	264
Total val. im'ps (a)		630	600	600	3,844	2,690	2,421	2,327	1,111
Total val. exp's (a)		1,305	1,479	1,873	484	1,085	884	1,797	1,052

EXPORT VALUES FOR MONTHS, IN CENTS PER POUND.

July.....	7.1	7.7	7.4	13.9	20.7	20.0	27.2	21.2	20.0
August.....	10.1	6.3	9.1	13.5	23.2	22.6	22.8	18.2	18.8
September.....	11.4	8.0	8.9	11.5	25.2	22.9	19.3	28.9	15.3
October.....	15.5	8.6	8.8	9.0	21.2	24.6	16.9	24.2	13.8
November.....		10.9	9.8	11.6	23.0	24.8	18.0	27.7	13.7
December.....		14.3	9.4	11.2	22.4	24.7	18.9	20.7	11.1
January.....		12.5	8.6	10.4	22.4	23.4	18.2	33.8	14.5
February.....		12.7	8.5	10.5	21.3	23.1	24.1	36.6	14.1
March.....		10.7	7.8	10.8	21.2	23.0	21.5	32.1	19.4
April.....		11.2	7.5	8.8	19.0	20.8	26.7	30.4	16.7
May.....		11.3	8.1	9.6	18.6	22.3	21.1	33.3	17.3
June.....		9.3	7.2	7.3	16.5	22.4	22.3	30.3	20.5
Average.....		10.2	8.8	10.6	21.9	23.7	19.2	28.1	14.7
Import val., aver.		20.8	21.6	19.1	58.4	40.3	35.2	41.7	16.1

a Last three ciphers omitted.

COURSE OF PRICES AT NEW YORK CITY FOR CHOICE STATE HOPS.

	1897-8	1896-7	1895-6	1894-5	1893-4	1892-3	1891-2	1890-1	1889-90
September.....	8½ @ 14	8½ @ 10	8 @ 10	9 @ 12	22 @ 24	20 @ 25	15 @ 18	23 @ 28	14 @ 16
October.....	13 @ 17	9 @ 11	9 @ 10½	9 @ 11	21 @ 24	22½ @ 25	16 @ 17	43 @ 47	11 @ 13
November.....	16 @ 18	10½ @ 15	9 @ 10	10 @ 13	22 @ 23	22½ @ 25	19 @ 21	35 @ 47	11 @ 14
December.....	17 @ 18	14 @ 16	9½ @ 10	11 @ 12½	21½ @ 23	23 @ 24	20 @ 22	32 @ 45	13 @ 14½
January.....		14 @ 15	8 @ 10	10½ @ 12	21½ @ 22½	23 @ 24	21 @ 28	32 @ 38	13 @ 16
February.....		13½ @ 14	8 @ 9	10 @ 11	21 @ 23	23 @ 25	25 @ 27	33 @ 36	13 @ 20
March.....		11½ @ 13	8 @ 8½	10 @ 11	18 @ 21	21 @ 23	24 @ 25	28 @ 31	14 @ 20
April.....		10 @ 11½	7½ @ 8	9 @ 10	18 @ 19	21 @ 21½	26 @ 32	27 @ 32	16 @ 18
May.....		10 @ 10½	7½ @ 8	8 @ 10	16 @ 18	20½ @ 22	28 @ 30	29 @ 32	18 @ 20
June.....		9 @ 10	7½ @ 8	8 @ 9	14 @ 16	21 @ 22½	24 @ 29	30 @ 32	20 @ 22
July.....		9 @ 10	7½ @ 8	8 @ 9	12 @ 14	21 @ 22	24 @ 26	22 @ 28	20 @ 23
August.....		9 @ 10	7 @ 7½	7 @ 10	10 @ 12	21 @ 22	24½ @ 27	17 @ 20	21 @ 28

Don't try to hunt two foxes with one dog.

GERMANY'S FOREIGN TRADE IN HOPS.
In bales, 180 pounds net.

Crop of	Exports.	Imports.	Net export
1894	41,746	50,615	8,869
1893	118,516	20,803	97,713
1892	118,020	24,729	93,219
1891	124,778	14,970	109,808
1890	208,999	22,747	186,252
1889	127,100	13,095	114,005
1888	144,197	15,153	124,044
1887	226,010	13,975	212,035
1886	167,880	19,439	148,441
1885	159,322	13,646	145,676
1884	93,497	19,445	74,052
1883	21,864	7,258	14,606
Av.	129,327	19,656	109,993

a Net import.

GREAT BRITAIN'S IMPORTS OF HOPS BY
YEARS. (BALES.)

Cal. yr.	From U. S.	Total.	Value U. S.	Value Other.	Exp't value.
1896	76	129	14c	12c	14c
1895	95	130	15c	13c	16c
1894	68	118	20c	18c	21c
1893	88	127	26c	24c	30c
1892	50	117	24c	22c	31c
1891	50	121	23c	22c	35c
1890	45	117	22c	20c	35c
1889	48	125	15c	15c	21c
1888	56	135	17c	16c	

IMPORTS, EXPORTS AND TOTAL SUPPLY
IN GREAT BRITAIN.

(Thousands of bales, 180 lbs. net.)

	Ex-ports.	Im-ports.	Net Imp't.	Eng'h crop.	Total sup'ly
1897				256	
1896	7	129	122	257	380
1895	8	135	127	344	471
1894	13	118	105	396	501
1893	11	127	116	258	374
1892	7	117	110	257	367
1891	6	122	116	272	388
1890	8	117	109	177	286
Av. '90-5	9	123	114	284	398
1889	11	124	113		

U. S. FOREIGN TRADE, SUPPLY AND CONSUMPTION.

Crop of	Ex-ports.	Net sup'ly	Im-ports.	Total sup'ly	Cons*.
1896	63	112	17	129	177
1895	93	199	15	214	184
1894	97	223	17	240	184
1893	97	171	5	176	171
1892	63	170	15	175	178
1891	70	138	13	151	164
1890	49	143	21	164	157

* Consumption at 1 lb of hops to a bbl. of beer.

ENGLISH HOP CROPS COMPARED.

Crop of	In thousands bales, 180 lbs.			Av. yr'ly pr's cts. per lb.	
	Kent.	Other	Total.	Exp't.	Imp't.
1897	153	103	256	16c	15c
1896	199	83	282	14c	12c
1895	197	147	344	16c	13c
1894	264	132	396	21c	20c

Average import value in 1893 was 26c per lb.; '92, 24c; '91, 23c; '90, 22c; '89, 15c; and in 1888 it was 17c.

HALF-YEAR'S FOREIGN TRADE, JAN. 1 TO
JULY 1. IN BALES.

	1897	1896	1895
Great Britain			
Imports	35,206	62,404	65,770
Exports	3,497	3,016	3,450
Net. Imp'ts.	31,709	59,388	62,324
United States			
Exports	21,554	42,237	48,881
Imports	8,126	8,507	6,157
Net exp'ts..	13,428	33,730	42,734

UNITED STATES HOP CROPS COMPARED.

[In thousands bales of 180 lbs net.]

Crop of	Pacific coast.	N. Y. state.	Total U. S.	Av. exp. value lb.
1897	135	65	200	?
1896	100	75	175	10.2 c
1895	182	110	292	8.8 c
1894	180	140	320	10.7 c
1893	143	125	268	22.0 c
1892	105	118	223	23.7 c
1891	94	114	208	19.3 c
1890	92	100	192	26.6 c

Inches Reduced to Decimals of a Foot.

Ins.	Foot.	Inches.	Foot.	Inches.	Foot.	Inches.	Foot.	Inches.	Foot.
3/2	.0026	1	.0833	2	.1667	6	.5000	10	.8333
1 1/8	.0052	1 1/8	.0938	2 1/2	.2083	6 1/2	.5417	10 1/2	.8750
1 1/4	.0104	1 1/4	.1042	3	.2500	7	.5833	11	.9167
1 1/2	.0208	1 1/2	.1146	3 1/2	.2917	7 1/2	.6250	11 1/2	.9583
1 3/8	.0313	1 3/8	.1250	4	.3333	8	.6667	12	1.0000
1 1/2	.0417	1 1/2	.1354	4 1/2	.3750	8 1/2	.7083		
5/8	.0521	1 3/4	.1458	5	.4167	9	.7500		
3/4	.0625	1 7/8	.1563	5 1/2	.4583	9 1/2	.7917		
7/8	.0729								

Fools multiply folly.

Rice Crop and Market.

Rice is an exception to nearly all crops of any magnitude, in that the total production of the U. S. falls far below domestic requirements. In some seasons we import half as much again as we raise, and in occasional years imports are fully equal to the domestic crop, or actually greater. Four states produce nearly all the rice grown, Louisiana, Georgia, North and South Carolina. A remarkable shifting of crop production has taken place in the past generation or more. In ante-bellum days, the Carolinas and Georgia raised practically all the crop; about the beginning of the civil war Louisiana came into prominence as a producer, gaining steadily and rapidly until now most of the rice is found in that state. Taking the country at large, rice growing was a highly important industry half a century before the revolutionary war, it being estimated that as long ago as 1740, the U. S. crop was a quarter to a third as large as the average annual production of the present decade. Much of the recent rapid growth in rice culture may be credited to the increased use of the twine binder and other improved labor saving machinery, together with improved methods of irrigation, and less dependence upon the weather in carrying "Providence rice" through the season. Improved methods of flooding, cultivating, harvesting, etc, have done much for various sections, notably in southwestern Louisiana, where rice growing is made a specialty.

Considering the fact that not nearly enough rice is grown in this country to supply domestic consumptive requirements, it is plainly evident there is room for great increase in its cultivation. This, too, without any increase in the rate of consumption, which might be materially advanced and not greatly interfere with the consumption of such other cereals as wheat and rye. This is made plain by a glance at official estimates of consumption in various countries. The present annual consumption in the U. S. is approximately 4 lbs per capita against a shade less than that in France and Germany, nearly 10 lbs. in Great Britain, and 14 lbs. in Italy, in none of these countries rice approaching the position of a staple food. While the consumption of rice in the U. K. is thus nearly 2 1-2 times and in Italy 3 1-2 times as great as in the U. S., the per capita consumption in Oriental countries, where rice is a principal article of food, is enormously greater. Official figures for Japan covering a series of years indicate the annual average of 308 3-4 lbs. per capita. In Assam 243 lbs, the province of Bengal, India, 365 lbs, and Bombay and Sind 547 lbs.

The total acreage in rice, according to the census of 1890, was 161,312 acres, Louisiana leading with 84,377, followed by South Carolina with 42,238, Georgia 18,126, North Carolina 12,241. Florida is credited with 1,787 acres, Mississippi 1,543, Alabama 810 and Texas 178, although the area in the state last named has since been materially increased; in Louisiana, Acadia Co. led in the '90 census with 15,352 acres. The following table affords at a glance an idea of the domestic crop, and the possibilities in the way of its extension in order to meet home requirements. The figures covering production are taken from the report of the statistician, U. S. Department of Agriculture and credited by him to Dan Talmage's Sons. In this connection, it should be noted that the figures quoted covering the census years (except that of 1890), are very much smaller than the U. S. figures, but substantially agreeing with the last federal census. The columns in the table referring to the imports and exports show the very heavy requirements of foreign rice in meeting the wants of home consumption.

RICE CROP MOVEMENT AND MARKET.

Crop.		Prices per pound.				Foreign Movement of Rice in millions of pounds.				
	Pounds.	July	Oct.	July	Apr.	Imports	Exports ^a domestic	Exports foreign	Total exports	Net imports
1896-'97	96,886,000	.05	.05	.04 $\frac{1}{2}$	.05	197.8	3.5	11.6	15.1	182.7
1895-'96	168,685,000	.05 $\frac{1}{2}$	.04 $\frac{1}{2}$	.04 $\frac{1}{2}$	.04 $\frac{1}{2}$	146.7	13.7	13.6	27.3	119.4
1894-'95	109,820,000	.05 $\frac{1}{2}$	.05 $\frac{1}{2}$	.04 $\frac{1}{2}$	.04 $\frac{1}{2}$	209.6	1.6	10.3	11.9	197.7
1893-'94	122,865,000	.03 $\frac{1}{2}$	.04 $\frac{1}{2}$	.04 $\frac{1}{2}$	.05	142.2	10.8	11.9	22.7	119.5
1892-'93	237,547,000	.05 $\frac{1}{2}$	.04 $\frac{1}{2}$	.04 $\frac{1}{2}$	.04	147.5	13.7	10.9	24.6	122.9
1891-'92	155,666,000	.06 $\frac{1}{2}$	.05 $\frac{1}{2}$	.05	.05	140.6	10.3	10.6	20.9	119.7
1890-'91	136,800,000	.05	.05	.05	.05	206.5	.5	8.1	8.6	197.9
1889-'90	131,722,000	.05	.05	.05	.05	113.2	.4	6.6	7.0	106.3
1888-'89	124,733,000	.05	.05	.05	.05	175.7	.4	8.3	8.7	167.0
1887-'88	113,631,000	.04	.04	.04	.04	142.4	.4	5.4	5.8	136.6
1882-'83	99,985,000	.06	.06	.06	.06 $\frac{1}{2}$	83.7	.1	9.0	9.1	74.6
1879-'80	85,597,000	.06 $\frac{3}{4}$	.07	.07 $\frac{1}{2}$	.07	51.9	.2	6.8	9.0	42.9
1874-'75	67,813,000	.08	.07	.08	.07 $\frac{1}{2}$	59.4	.3	12.4	12.7	46.7
1869-'70	53,971,000	.09	.09	.07 $\frac{1}{2}$	.06	43.1	.2	15.2	15.4	27.7
1859-'60	117,885,000	.04 $\frac{3}{4}$	.04 $\frac{1}{2}$	.04 $\frac{1}{2}$	.04 $\frac{1}{2}$	b	b	b		
1854-'55	70,872,000	.04	.05	.04 $\frac{1}{2}$	.05					
1849-'50	112,238,000	.03 $\frac{1}{2}$	.03 $\frac{1}{2}$	.03 $\frac{1}{2}$	.03					
1844-'45	96,358,000	.02 $\frac{1}{2}$	.03 $\frac{1}{2}$	.02 $\frac{1}{2}$	.03 $\frac{1}{2}$					
1839-'40	84,146,000			.02 $\frac{1}{2}$	.03 $\frac{1}{2}$					

^a Rice, bran, meal, etc. ^b Total exports in 1860, 84,163 tons and 77,837 bbls; prior to that no official record.

Broom Corn.

Broom corn is grown in a scattered way, in small patches for local or strictly family use, in most of the states, and is a product for which soil and climate are favorable over a very large area. In spite of this adaptability, it is grown to any extent for commercial purposes in but three states—Illinois, Kansas and Nebraska—and its importance in the last-named state is diminishing. Not only is the commercial crop thus localized in three states, but within those states it is further centralized in a small number of counties.

In Illinois, which for many years furnished the commercial supply, its production is practically monopolized by three counties, Coles, Douglas and Edgar, which have more than 80 per cent. of the total acreage of the state. In Kansas, broom corn has a less permanent place in crop distribution than is the case in Illinois. It has been experimented with more or less in all parts of the state, its growth being at one time a fad on account of its drouth-resisting qualities. But as any general movement toward the crop gives a production far above the present demand, the acreage fluctuates widely from year to year. In the end it will probably be assigned a permanent place in certain districts in the central and western part of the state, where its ability to withstand drouth makes it especially valuable. In 1895, when a sudden determination to experiment with the crop sprang up all over the state and the total acreage was 50 per cent. greater than the whole acreage of the country in 1889, nearly 40 per cent. of the 134,487 acres in the state were in six counties lying near the center of the state. It is in Cheyenne, McPherson, Reno and Rice that the crop is being given more permanent attention. In Nebraska, the crop is largely confined to a belt of counties lying south of the Platte river and west of Hastings, but the interest in the crop is local and apparently decreasing.

The crop reporting system of *American Agriculturist* and *Orange Judd Farmer* is the only authority presenting data relative to the broom corn crop each year. The crop of 1897 is characterized as grown upon an acreage slightly smaller than that of 1896, with a rate of yield smaller than the average but

All things are difficult to sloth.

with a quality of brush decidedly good. In Illinois, the acreage is a little smaller than that of 1896, and with a rather uniform reduction in the different important counties. The season was unfavorable for the best results. The acreage in Kansas was practically the same as that of 1896, with perhaps a slight net decrease. In Nebraska, the acreage is now smaller than it was in 1889, before the boom began. The season here was rather more favorable and the rate of yield is above the average with the quality good.

The following statement gives the acreage, and product and rate of yield for 1897, and as a matter of comparison, the same data for the great crop of 1895 are presented:

BROOM CORN ACREAGE AND YIELD, BY STATES.

	American Agriculturist Reports.						U. S. Census Figures.		
	1897.			1895.			1889.		1879.
	Acres.	Yld.	Pounds.	Acres.	Yld.	Pounds.	Acres.	Pounds.	Pounds.
Illinois..	21,100	575	12,133,000	30,500	825	25,162,500	34,340	15,932,502	11,645,101
Kansas..	55,500	450	24,975,000	141,600	550	77,880,000	30,717	10,809,434	5,683,018
Nebras'a	12,600	425	5,355,000	20,000	375	7,500,000	16,792	6,514,763	1,751,807
Others...	5,000	400	2,000,000	8,000	450	3,600,000	11,576	5,300,730	10,400,180
Total.....	94,200	473	44,463,000	200,100	570	114,142,500	93,425	38,557,429	29,480,106

While nearly all of the broom corn crop is consumed at home, moderate quantities, both in the raw and manufactured state, are annually shipped abroad. For example, in the fiscal year '97, we exported broom corn to the amount of \$136,000. This went chiefly to Canada, with a little to Cuba, Germany, Australasia and South America. This sum fairly represents the average annual exports; in the past eight years these have been as high as \$218,000 in '92 and as low as \$117,000 in '96. Exports of brooms and brushes are classified as one; these are annually \$150,000 to \$250,000, last year being \$186,000.

PRICES PER TON AT CHICAGO.

	1897	1896	1895	1894	1893	1892	1891	1890
January	\$60 70	\$40 ..	\$ 90 110	\$ 65 70	\$100 110	\$130 140	\$ 90 100	\$115 130
February	60 70	40 ..	90 110	60 70	100 110	130 140	90 100	115 120
March	60 70	45 50	90 110	60 70	100 110	130 140	90 100	115 125
April	60 70	45 50	90 110	60 70	100 110	130 140	90 100	115 125
May	60 70	45 50	90 110	60 70	100 ...	130 140	90 100	115 125
June	60 70	45 50	90 110	60 70	100 ...	130 140	100 110	115 125
July	60 70	45 50	90 110	60 70	100 ...	130 140	100 110	110 130
August	60 70	45 50	70 80	70 80	100 ...	130 140	100 110	110 120
September	60 70	45 50	70 80	80 90	90 ..	130 140	100 110	110 120
October	70 80	60 70	60 65	100 110	80 90	90 100	100 110	90 105
November	70 80	60 70	45 50	90 110	75 ..	100 110	100 110	90 100
December	70 80	60 70	45 70	90 110	65 70	100 110	115 120	90 —

Some years ago there was a large speculative element in the broom corn trade, and prices were constantly changing and subject to rapid and sharp fluctuations. Such a condition of affairs was inimical to the manufacturers

whose business was thus dependent upon speculative whims, and the final result has been direct purchases from growers to manufacturers, to a considerable extent eliminating a certain class of middlemen. Under this new condition of affairs, the price of broom corn holds remarkably steady, and is affected to any important extent only by the volume of crop production. The preceding statement shows prices in Chicago on the first of each month since 1890, the quotations so far as possible representing the best quality on the market, Illinois choice, self-working, or hurl, good to choice green. The quotations (on Page 512) are per ton.

Cranberries—Area, Yield, Prices.

Cranberries are grown extensively in but two states, although a few others devote some attention to the crop practically and experimentally. Probably nine-tenths of the cranberries found in the markets are produced in New Jersey and eastern Massachusetts, notably Cape Cod. Wisconsin was quite a producer some time ago, but in recent years the crops have been small, as the bogs were greatly damaged or destroyed by fires. A few cranberries are grown in Connecticut, Maine, New York and Michigan, and portions of the Pacific northwest have for several years been experimenting with this crop. Canada produces some cranberries, and would market a good many more were conditions favorable. The cranberry thrives best on a natural black peat or muck bottom, where plenty of sand is available, and a requisite is a liberal supply of running water.

The establishment of a cranberry bog requires a large expenditure of labor and money, and even then the business is hazardous unless thoroughly understood and cared for. The question of drainage is a highly important one. Cranberry vines are flooded in the fall, beginning in October, and this is continued as late as May, when the water is drawn off. This furnishes protection from frosts, and in some degree from insect pests. Blossoms appear in June and with an ample supply of moisture the fruit ripens in September and October. The cranberry frequently suffers both in fruit and vine from the ravages of insects and the crop is also subject to damage through fungous diseases and drouth. Upon being harvested the fruit is carefully cleaned, screened and assorted, due attention being given to the process of ripening or coloring previous to placing in barrels and crates. Cold storage for keeping cranberries during early autumn is not generally favored; successful growers prefer to store the fruit in a cool, dry bog house or cellar, disposing of it before cold weather sets in. In the states where mostly grown, law governs the size of package. In Massachusetts, New Jersey and Wisconsin, the crate must hold one bushel, or 32 quarts dry measure. New Jersey law provides that the standard crate shall be 7 1-2 x 12 x 22 inches, capacity 1980 cubic inches, with the barrel three times a crate, or containing 96 quarts. The Massachusetts barrel is 100 quarts; efforts were made in a recent legislature to reduce this to 96 quarts.

The cranberry crop is practically all consumed at home. Commendable efforts were made a few years ago, mostly by New Jersey growers, to build up an export trade, but nothing of consequence has ever been accomplished. A special agent spent several months in England teaching best methods of cooking and serving the fruit, and creating a favorable impression, yet cranberries are still regarded in the light of a novelty abroad, an occasional season showing perhaps 5,000 bushels exported from this country. Under the

Dingley law an ad valorem duty of 25 per cent. has been placed upon foreign cranberries, which will serve to shut out possible shipments from Canada.

Comparatively few sizable bogs have come into bearing the last year or two; crop and market conditions not favorable to any rapid extension, although enough new territory is being developed to probably more than offset loss in other directions. The west, notably Wisconsin and Michigan, are showing renewed interest in cranberry growing, yet they furnish only a small percentage of total supply. The Wisconsin cranberry section is confined to the neighborhood of Greenlake and Wood counties and eastward to Green Bay and Lake Michigan. The heavy counties in Massachusetts are Plymouth and Barnstable, with considerable attention given the industry in Middlesex, Norfolk and Bristol counties. Rhode Island and Connecticut raise a few cranberries, and there is a small acreage across the Sound in Long Island. The Massachusetts state census for 1895, issued at the close of 1897, points to a remarkable increase in the production of cranberries in Plymouth county, placing the yield at 104,192 bbls, against only 14,308 10 years earlier in 1885. The Massachusetts crop of 1895 is reported at 169,583 bbls, with a value of \$1,038,712. The leading counties of New Jersey are Burlington, Atlantic, Ocean, Monmouth and Camden, although a number of others turn off a good many berries in the aggregate.

An average crop of cranberries is about 600,000 bushels, more than half of this being found in New England, and most of the remainder in New Jersey. The crop of 1897 was short, and one of the smallest in years, approximating 435,000 bushels against 560,000 in '96 and 640,000 bushels in '95. The weather in the spring of 1897 was unfavorable, the crop developed poorly and was eventually damaged by blight, scald and insects. Prices one year with another are governed to some extent by the supply of other fruit, notably apples. A short crop of the latter in 1897 stimulates the demand for cranberries; the enormous apple yield of 1896, with attendant phenomenally low prices, hurt the sale of the acid fruit that year. Extended missionary work is still necessary before American consumers will regard cranberries as a staple article of food rather than a luxury.

CRANBERRY CROPS AND MARKETS, BY YEARS.

Crop.	Crop in Bushels.				Boston price per bushel.		
	New Eng.	New Jer.	West.	Total.	October.	January.	May.
1897	256,000	120,000	50,000	415,000	\$2.00	\$2.50	
1896	380,000	130,000	50,000	560,000	1.75	1.25	\$1.00
1895	420,000	210,000	10,000	640,000	2.50	2.00	2.50
*1894	185,000	200,000	25,000	410,000	2.50	3.00	0.75
1893	575,000	325,000	100,000	1,000,000	1.50	2.50	3.00
1892	375,000	160,000	65,000	600,000	1.50	2.25	3.00
1891	480,000	250,000	30,000	760,000	2.00	2.25	2.00
1890	375,000	200,000	225,000	800,000	2.25	3.00	3.50
1889	350,000	200,000	70,000	620,000	2.00	3.00	5.00
1888	260,000	225,000	100,000	585,000	2.00	2.25	1.00
1887	306,000	164,000	141,000	611,000	2.00	3.00	3.00
1886	275,000	234,000	31,000	540,000	1.50	2.75	4.00
1885	280,879	198,125	264,432	743,436	1.70	1.40	0.75
1884	130,583	124,648	24,783	280,014	3.00	4.75	2.75
1883	141,964	118,524	135,507	395,995	3.00	3.75	5.50
1882	193,664	78,507	50,000	322,171	3.00	4.50	3.50
1881	160,825	157,014	143,186	461,025	2.00	4.00	3.00
1880	250,500	128,700	113,430	492,630	2.00	2.00	1.00

* Figures for 1894 and earlier years, from annual reports American cranberry growers' Association.

Would you live with ease, do what you ought and not what you please.

The Commercial Onion Crop.

Long favorably regarded as a special money crop, the cultivation of onions is conducted on a large scale in a number of states. But beyond the environments of the kitchen garden, it is in no degree a staple crop in the same sense as the potato. Requiring considerable hand labor in its proper cultivation, even in a large way, there is in addition more or less risk in growing onions through unfavorable weather conditions and the ravages of insects. The Connecticut valley, including western Massachusetts and the western half of the state of Connecticut, isolated sections of New York and the northern half of Ohio constitute what is really the commercial onion belt. The acreage remains much the same from year to year, fluctuating with price and market conditions. In the recent past some increase in commercial onion growing is noted in the central states and in the Pacific northwest. Of course onions are grown in every part of the country for local use, but only in the sections named is there any considerable surplus affecting and controlling the markets after the crop is entirely harvested.

The bulk of the crop consists of red and yellow varieties, although the white onion is a specialty among farmers along the north coast of Long Island Sound. The rate of yield per acre varies greatly, according to character of the soil, weather, and attention given the crop. Intensive cultivation under propitious surroundings frequently returns a yield of 600 bushels per acre, and occasional small tracts yield at the rate of 800 to 900 bushels, or possibly more. But as a whole, the rate of yield is nothing like this. The average last year on the estimated acreage was 233 bushels per acre, against 266 bushels in 1896, and practically the same in 1895. The yield is highest where the crop is held in greatest esteem, and where the most attention is given it; notably the Connecticut valley, Orange Co, N Y, and northern Ohio.

Onions keep well when properly stored and handled and are no more perishable than potatoes, although such portion of the crop as remains on hand in the spring often shows serious loss through natural shrinkage, rot and sprouting. Growers making a business of this crop hold no uniform views as to best time of selling, being guided by market conditions. If the price is high in the fall, the chances are the bulk of the crop leaves first hands early; if unfavorable, growers often prefer to store and hold rather than sell direct from the harvest field. The crop is bought largely by city dealers and speculators, who send their agents through the onion belt buying, shipping and storing with a view of realizing a profit later in the season. Dampness and warmth hasten the decay of onions, and fear of this often impels farmers to sell early even at relatively low prices. The crop is practically all consumed at home. A small quantity is exported, while imports are considerable. As a rule, the foreign onions coming to this country are fancy varieties from Spain and Bermuda. In an occasional short year liberal quantities are imported from Egypt.

That intensive cultivation is followed in the commercial onion crop, is seen through the restricted area devoted to the business, yielding large returns in the aggregate. Practically 10,000 acres represent the area given over to onions east of the Rocky mountains, in making up the supply for the markets during the winter and spring. This is exclusive of the scattered acreage, liberal in the aggregate, found in almost every state, and yielding a small surplus which supplies local markets of earlier autumn. What is known as the commercial onion crop ranges from 2,000,000 to 3,000,000 bushels. That of 1897 was estimated at 2,300,000 bushels against 2,800,000 bushels in 1896, and 3,000,000 bushels in 1895. Prices at time of latest harvest averages 25 to 50 per cent higher than in the fall of 1896.

THE COMMERCIAL CROP OF ONIONS OF UNITED STATES.

	Number of Acres in Crop.				Yield in Bushels.			
	1897.	1896.	1895.	1894.	1897.	1896.	1895.	1894.
Grand Isle Co., Vt.....	45	40	60	65	7,000	5,000	9,000	10,000
Eastern Mass.....	570	600	750	744	148,000	168,000	225,000	112,000
Connecticut Valley.....	350	330	390	400	96,000	115,000	156,000	120,000
Rhode Island.....	200	190	200	200	40,000	52,000	60,000	35,000
Wethersfield District...	220	200	225	225	50,000	55,000	85,000	25,000
Southport District.....	1,000	1,000	950	1,000	210,000	250,000	302,000	100,000
Other Connecticut.....	500	500	550	600	100,000	125,000	135,000	75,000
Orange County, N. Y....	1,400	1,800	1,890	1,800	245,000	504,000	660,000	360,000
Other New York.....	950	925	950	1,100	200,000	300,000	190,000	187,000
Northern Ohio.....	1,300	1,150	1,300	1,250	429,000	402,000	325,000	500,000
Central Ohio.....	900	1,400	1,100	400	293,000	420,000	300,000	80,000
Chicago.....	400	400	500	300	80,000	70,000	125,000	45,000
Northwest.....	850	900	1,000	950	192,000	180,000	200,000	175,000
Central States.....	1,200	1,150	1,300	1,200	210,000	172,000	195,000	120,000
Total.....	9,885	10,585	11,165	10,234	2,300,000	2,818,000	2,973,000	1,944,000

ONION PRICES AND FOREIGN MOVEMENT FOR A SERIES OF YEARS.

Crop.	Bushels.	Price per bu. at New York.			Exports.	Imports.
		Oct.	Jan.	April.	Bushels.	Bushels.
1897-8.....	2,300,000	40c@ \$1.00	75c@ \$1.25	?	?	?
1896-7.....	2,818,000	20@ 70c	80c@ 1.10	\$2.00@ \$2.60	73,511	560,138
1895-6.....	2,973,000	25@ 60c	20@ 50c	30@ 60c	82,916	598,498
1894-5.....	1,944,000	60@ 70c	50@ 80c	80c@ \$1.20	53,335	628,892
1893-4.....	2,330,000	50@ 80c	50@ 75c	30@ 60c	68,865	551,696
1892-3.....	2,600,000	60c@ \$1.00	60c@ \$1.00	80c@ \$1.40	57,610	542,539
1891-3.....	3,200,000	40@ 70c	80c@ \$1.00	60c@ \$1.10	59,842	520,933

Peppermint Market and Crop.

The growing of peppermint for the distillation of the well-known essential oil has long been an important industry in a few states. The area which may be termed the peppermint belt was formerly a very narrow one, but in recent years has shown considerable expansion. Up to the comparatively recent past, a small section in New York, chiefly Wayne Co, produced the bulk of the crop, but this has been moving westward, and now Michigan and Indiana oil are largely supplanting the York state product. Within the past year or two some fairly encouraging experiments have been made in growing peppermint oil west of the Rocky mountains, but this cuts no figure in the commercial supply. The industry in New York state has grown into disfavor among many farmers there although it still remains a considerable business in a number of towns. The rapid development to important proportions in the last few years in Michigan and Indiana, where land is cheaper, has greatly hurt mint growers in New York, and what is of more importance to the industry as a whole, is the rapid stride made in the production of this article in Japan. The output of oil in the U S is greatly in excess of home requirements, and the surplus must be marketed in Europe. The development in Japan makes a big surplus there, and this is also shipped to European markets, competing sharply with the U S product. England and Germany and a few other countries also raise small quantities.

The oil is distilled from the plant when at the proper stage of development, and the rate of yield varies greatly, according to the seasonal weather conditions and the age of the plants. New fields if in prime condition when harvested, will yield at the rate of 30 lbs oil or more per acre, while from old plants only half that quantity can be expected. In the last two or three years there has been a big increase in the acreage of "black mint;" the oil

Innocence is its own defence.

from this plant will not command as high a price, but the outturn per acre is much greater. This so-called black or English mint yields all the way up to 75 lbs oil to the acre. The name "white" is applied to a variety differing from both the American and black (English) mint.

THE PRODUCTION OF PEPPERMINT OIL

Approximates 250,000 lbs annually, the bulk of this coming from Michigan, the cultivation of the plant being recently extended into the northern and eastern portions of that state. For a number of years several counties in southern Michigan and two or three in northern Indiana have grown peppermint very largely. For many years Wayne Co, N Y, took the lead as a producer, with an annual output of 150,000 lbs; owing to reasons already noted, the production has dropped off there to 25,000 or 30,000 lbs. Ontario and Seneca counties each show small areas in this crop. The output of peppermint oil in Japan in 1897 was estimated at 187,000 lbs. In 1896 Germany imported Japanese oil to the extent of 53,000 lbs; in 1895, 44,000 lbs. Next in importance as a mint producer, after the United States and Japan, is England, which yields a moderate amount, nearly all being consumed at home, but small quantities coming into this country, the quality being a special one. In Thuringia, Germany, the cultivation of peppermint has been undertaken on a moderate scale, but only a little oil produced up to the present. China, Spain and France each grow enough peppermint to show a small surplus for export.

Owing in large part to the competition above noted, the price of peppermint oil has declined sharply in recent years, until the production from the latest crop sold at 75 to 90c per lb in the west, the lowest on record, and \$1 to \$1.10 per lb in New York state. In 1896, prices were respectively 75c to \$1.10 in the west, and \$1 to \$1.25 in New York. In 1895, western farmers received \$1.50 to \$1.75 per lb for the oil, in New York \$1.80. When the price of American oil in the west is, say 90c, the English or black mint is quotable at 70c or a little better, and if offered at less than a fair advance over these prices, it is almost sure to be an inferior mixture. At the low prices which have ruled in peppermint industry of the last year or two, it is very difficult for any but the largest growers to secure a profit, and the tendency is to drive out the small growers. Looking back over a long series of years, nothing like present low prices were ever experienced. Up to the past two or three seasons, peppermint oil sold at about \$1.75 to \$2.50 per lb, but has fluctuated sharply, occasionally reaching very high figures. According to the New York Oil, Paint and Drug Reporter, a price as high as \$4.37 1-2 per lb was reached in 1885, while ten years earlier a figure as high as \$5.50 was barely touched. In the early '70s, prices were largely \$2.75 to \$3.75, and in the early '80s, \$2.25 to \$3.

PEPPERMINT OIL EXPORTS FROM THE UNITED STATES.

Year ended June 30	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Pounds	162,492	85,290	87,633	80,225	99,629	54,987	45,321
Value	\$257,484	174,810	194,616	209,722	267,422	156,418	120,831
Average value.....	\$1.52	2.05	2.22	2.61	2.68	2.84	2.67

Field Beans.

Only three or four states make a specialty of bean growing in a large way, although this pulse crop is produced in greater or smaller quantities everywhere. The annual crop of the United States is 3,000,000 bu and upward, this including navy, pea and lima beans, the last-named variety being grown very largely in California. Field beans are shown most favor in New York, that state being credited with about a third of the annual crop, holding first place for many years, with California second. In the census of 1880, Maine was third in production and Michigan fourth, but ten years later the order was transposed, Michigan taking third place and Maine fourth. In New York, the bean section comprises a group of counties in the western part of the state, including Orleans, Monroe, Livingston, Genesee and Wyoming; in California, Ventura, Santa Barbara, Sacramento, San Luis Obispo counties, while in Michigan, the crop is fairly well distributed, Livingston, Van Buren and Jackson, perhaps leading.

While the crop is thus popular in only a few states, the fact remains that not enough beans are produced in this country to supply home requirements, our imports in the aggregate greatly exceeding our exports; it is gratifying to note that the latter are increasing somewhat, and last year were the larger of the two. In no year have we exported as much as 1,000,000 bu, exceeding that figure in imports frequently, but latterly buying less than a decade ago. For a long time the home price of beans, taking pea and navy as standards, remained nearly stationary around \$1.80 to \$2.25 per bushel. But in 1896 there was a phenomenal decline to the lowest prices on record in sympathy with other farm values at that time. Some of the recent improvement came with the change in the tariff from the old rate of 20 per cent ad valorem, to 40c per bushel specific. The annual crop of field peas somewhat exceeds 6,000,000 bu according to the federal census, nearly equally divided between cowpeas and Canada peas. In the last named, Michigan and Wisconsin lead in importance, while cowpeas are grown very extensively in some of the southern states, including Georgia, the Carolinas, Alabama, Mississippi, Texas and Arkansas. It is a matter of satisfaction that in recent years the north is giving increased attention to such pulse crops as cow and Canada peas.

DOMESTIC PRICES, IMPORTS AND EXPORTS OF BEANS.

	Price of pea beans per bushel.				Foreign trade in beans.			
	Chicago.		New York.		Exports.		Imports.	
	Nov. 1.	May 1.	Nov. 1.	May 1.	Bushels.	Av. val.	Bushels.	Av. val.
1896-97.....	\$0.98	\$0.72	\$1.25	\$0.90	900,219	\$1.23	482,986	\$1.01
1895-96.....	1.25	.94	1.25	1.18	473,975	1.33	613,801	1.07
1894-95.....	1.52	1.75	1.85	2.05	242,680	1.76	1,535,960	1.00
1893-94.....	1.80	1.75	1.90	2.00	326,748	1.74	1,184,081	.94
1892-93.....	2.00	2.05	2.10	1.95	389,913	1.91	1,754,943	.99
1891-92.....	1.80	1.75	2.00	1.65	637,972	1.39	874,050	1.09
1890-91.....	2.25	2.30	2.40	2.35	251,063	1.88	1,656,768	1.25
1889-90.....	1.75	1.80	2.00	1.95	261,212	2.13	1,250,287	1.04
1888-89.....			2.05	1.70	294,456	1.90	765,483	1.02
1887-88.....			2.25	2.90	253,170	1.83	1,942,864	1.12
1886-87.....			1.70	1.65	387,222	1.45	648,388	.93
1885-86.....			2.00	1.30	408,318	1.39	649,002	.90
1884-85.....			1.85	1.60	271,044	1.92	284,770	.89

He that lives carnally, won't live eternally.

Castor Beans.

Beginning in southern Illinois and extending across Missouri into eastern Kansas is a strip of country producing practically all of the castor bean crop; relatively few counties devote much attention to it. Included in these are Clinton, Madison, Franklin and Jefferson counties, Illinois; Vernon and St Clair counties, Mo., etc. Here and there in Nebraska and Oklahoma some little attention is given the crop. The annual yield is 100,000 to 150,000 bu., practically all consumed by a few crushers located at St Louis. It is a question whether the acreage annually devoted to castor beans could be very largely increased and still permit sale at remunerative prices. In many instances growers consider castor beans a better paying crop than grain, and would be satisfied with \$1.25 per bu., a figure occasionally touched, although one year with another the price remains close to \$1 per bushel to farmers.

The market is dependent largely upon the actions of the castor oil combine. The output of American oil is insufficient to meet trade requirements and there is a considerable importation of both castor beans and expressed oil. Years ago the duty was 50c per bushel on beans and 80c per gallon on oil, but in '94 the rates were reduced to 25c and 35c respectively, nor was there any restoration to higher figures when the Dingley bill was passed last summer. Under these conditions it is fair to presume that any very general increase in the domestic crop would probably result in the lowering of prices. Yet where commercially grown, farmers are favorably disposed toward this crop, and in some directions there is a little tendency to increase the acreage. From 45 to 47 per cent of the weight of the bean is oil, which is obtained by expression. In Florida and other warm countries, the castor bean is a perennial, growing to a height of 30 to 50 feet; and in colder climates, it is an annual, flourishing in latitude 35 to 40 degrees, and would no doubt do well in the middle south and west. The yield varies greatly, often 10 to 12 bu (of 46 lbs) per acre, occasionally up to 15 or 20. The pomace is considered valuable for fertilizing purposes. The crop of 1897 was not a full one, taken as a whole, and prices averaged slightly higher than a year ago.

IMPORTS CASTOR BEANS AND CASTOR OIL.

Year ended June 30.	Castor Beans.				Castor Oil.			
	Bushels.	Value.	Av. Val.	Duty.	Gallons.	Value.	Av. Val.	Duty.
1897	84,128	\$93,151	\$1.11	25c	4,368	\$1,829	\$.42	35c
1896	145,725	117,945	.81	25c	23,574	8,461	.36	35c
1895	277,231	215,360	.81	25c	33,636	11,892	.35	35c
1894	47,448	41,931	.88	50c	4,256	1,654	.39	80c
1893	147,061	148,904	1.01	50c	1,518	712	.47	80c
1892	163,089	160,919	.98	50c	2,284	973	.43	80c

Small Fruits and Garden Truck.

The disposition of the product of the market garden, including small fruits, fresh vegetables and such perishable stuff, requires much care. Such goods need especial handling in order to secure best results to grower and country shipper. Too often serious loss follows improper handling, and as a result there is no particular profit to any, except the transportation company, which gets as much for carelessly packed produce, commanding a low price in market, as for that which reaches its destination in good shape ready for quick sale. In shipping such products as berries, other fresh fruits, and green vegetables, it is important to have them reach the wholesale market at a very early hour in the morning in order to catch the best trade and conse-

What one relishes, nourishes.

quently best prices. Often delayed consignments reaching the market in the middle of the day, or in the afternoon, must sell at very low figures, or go over to another day, and in the latter case may appear to poor advantage. Great consideration should be accorded to the matter of attractiveness. Berries should be placed on the market in fresh, clean boxes or baskets, packages free from inferior, damaged or over-ripe fruit, and such vegetables as radishes, young onions, carrots, parsnips, lettuce, etc., should be washed clean and present a bright, fresh, crisp appearance. Study the markets to which you expect to ship, and place your goods thereon in uniform approved packages, "honest count, weight and measure," etc. The shipper who is disposed to "face" his small fruit or vegetables in baskets, boxes or barrels, is always found out; on the other hand, honesty of packing and high quality mean quick appreciation. A recent farmers' bulletin on marketing farm produce contains some important points along this line. This says: "Wherever possible, permit your fruit and vegetables to cool from the heat of the day before packing. Make sure they are perfectly dry and packed tightly, taking care to bruise nothing. Bruising liberates moisture, which in turn produces decay. Either too tight or too loose packing results in bruising; and if after being shaken down in transportation, there is room in the packages for the fruit to shake, it will certainly be bruised. In packing fruit, let the degree of ripeness in each package be uniform. When hard, unripe fruit is put in the same package with tender, ripe fruit, the latter will be bruised and all decayed. Where it is possible, oversee the loading of the car, and see that space is left for free circulation of air between the boxes, crates, etc., as this will do much to prevent heating and decay."

Fruits and Vegetables.

STANDARD FRUIT PACKING AND PACKAGES.

A notable feature of the various big markets is the great divergence used in handling fruits and vegetables. For example, strawberries are found in 16-quart, 24-quart and 32-quart cases; Michigan and Wisconsin ship almost exclusively in 16-quart cases; southern Illinois, Arkansas and other parts of the middle south the 24-quart cases; northern Ohio and many of the eastern states the 32-quart case, this also finding considerable favor in Florida. Strawberries should not be picked immediately after a heavy rain, as they are liable to reach the market in a soft condition. Owing to their very perishable nature, red raspberries are usually shipped in cases of 24 pints, while black raspberries are handled in both pints and quarts; blackberries in quart boxes or baskets almost exclusively, these in 24 or 32-quart cases. Gooseberries are handled in the same manner but should be picked before they begin to turn color. Probably no variety of fruit, taken as a whole, is handled in a manner less satisfactory to producer and consumer than the peach. The markets are often flooded with small, hard, unripe specimens, lacking in flavor and other desirable qualities, while at the same time there may be a positive scarcity of this luscious product of the orchard. As a result prices cover an extremely wide range. The styles of package vary greatly. The popular one in the west is the one-fifth bushel basket, enormous quantities of these being used in Michigan. In the fruit sections of the middle and eastern states, half-bushel and five-eighths bushel baskets are largely in evidence; early peaches from the south are packed in crates, these usually holding a number of small baskets. Small varieties of plums are usually handled in the 24-quart case and in 10-lb baskets. California fruits, so generally recognized for their standard excellence, are shipped in packages of uniform size and shape; grapes in crates containing four and eight baskets of five or

Blame-all and praise-all are two blockheads.

six pounds each, peaches in 20-lb boxes, pears 40-lb boxes, etc. Oranges, both California and Florida, are universally packed in boxes holding 176, 226 and 300, etc.

Grape growers have reduced the picking, packing and marketing to a science. The package almost universally in use for autumn, when the large crop is marketed, is the 9-lb basket and the 5-lb or "pony" size, enormous quantities being shipped every week during the season. Grapes should be handled as little as possible, so as not to disturb the bloom. Pack stems downward, package well-filled, so that when the cover is removed, an even, stemless surface is presented. The eight varieties of grapes which appear on the market earliest are as follows: Niagara, Moore's Early, Ives, Hartford, Worden, Champion, Concord and Perkins. First shipments are from Florida, Georgia and Louisiana, followed rapidly by such as Ives from southern Illinois, Cincinnati, and Indiana; then Concord from southern Iowa, Missouri, etc. The first grapes from Michigan are Champion, following are Ives and Concord from northwestern Ohio. The bulk of Concord, Catawba, late Niagara, Delaware, etc., are from northern Ohio, northwest Pennsylvania and New York state. Muskmelons are handled in baskets, crates or barrels, the last named thoroughly chipped to insure ventilation, while watermelons are usually shipped in carloads, loose.

FRESH VEGETABLES.

In vegetables, asparagus is a variety which brings fancy prices early in the season, but owing to the rapidity with which the crop develops, the market is liable to decline very sharply, and at a rapid pace; only fine, perfect stalks should be shipped, neatly tied in bunches of even size and quality, these packed in boxes holding a dozen or more bunches, and well protected by loose, soft paper or moss during transit. A requisite in marketing cauliflower to advantage is to have the heads good size, bright and cream-like in appearance, as wilted or badly stained specimens sell poorly. Head lettuce sells best in Chicago and in most eastern markets, while further west the curled variety is a favorite, these vegetables being handled advantageously in small barrels. Green peas heat and mold readily, and must be cool and dry when packed and shipped; the one-third bushel basket is a popular size, and of course the earliest on the market command best prices. String beans are easily handled but all markets are generally supplied from home gardens after the opening of the season, and shipments from a distance often prove unprofitable. Radishes should be washed and dried, tied in small bunches; pithy roots should be kept at home. Ripe tomatoes are nowadays on the market almost twelve months in the year, exclusive of those grown under glass. Beginning with Florida, the season advances rapidly, with a corresponding decline in prices. Only smooth, bright fruit should be marketed and of course the earlier the better. The earliest varieties, grown in the south, are usually shipped in crates holding six small baskets; but later crops in the one-third bushel basket, followed by "home grown" in the early autumn in baskets of one-half and one bushel. No crop is a greater favorite as a standard with market gardeners than cabbage. Ship in heads solid in texture, having some of the outside leaves and stems removed, and pack tightly in crates of about one barrel capacity, as the shrinkage is considerable. Celery should be bright, well bleached, and crisp, tied in bunches of about one dozen stalks and packed in boxes of six or twelve dozen each. Honey is not subject to the same price fluctuations common to perishable produce, generally meeting a slow but steady sale. That shipped from Utah and other western states is largely the extracted honey, while eastern producers sell it in the comb, the 1-lb frame forming the uniform package, a case holding 12 to 24 of these, usually with a glass front.

OUR DAIRY DEPARTMENT.

BUTTER AND CHEESE.

Butter Production and Market Outlook.

The rapid development of the dairy industry is one of the notable and at the same time most promising features of progressive agriculture. A generation ago creameries were practically unknown; to-day they may be counted by the thousands, with about 10,000 actually in operation, and turning off an enormous quantity of finished product of a remarkably high average quality. Since the middle of the century the average yield of milk per cow has doubled, due to the splendid advance in breeding, better understanding of rations and better care of the dairy. The general improvement in the average quality of butter placed on the markets compared with less than a generation ago is also marked, although there is still too much lacking in fine flavor and other requisites. All this onward march in dairying naturally results in

AN ENORMOUS OUTPUT OF BUTTER,

Especially since winter dairying has grown to such large proportions, serving as it does to greatly swell the amount produced. The census returns show that notwithstanding the great extension of the creamery system, the production of butter on farms has increased more rapidly than population. Nowhere has the output shown such rapid growth as in such portions of the northwest as Iowa, Wisconsin, Minnesota, Nebraska and the two Dakotas, although other western states are not far behind in the degree of energy portrayed. This situation in the west has in turn reacted favorably on the older dairy sections of the eastern and middle states, serving as a stimulus, and the business, as a whole, is now in the highest state of development it has ever enjoyed. Only in the south has dairying been neglected, and even there certain states are in the last few years showing noteworthy interest. The first creameries were established in New York in 1864, in Illinois in 1867, in Iowa in 1871, in Massachusetts in 1880 and the growth since has been marvellous everywhere. According to the department of agriculture, Iowa had only 45 creameries in 1874, increasing to 244 six years later, 468 in 1888, and 859 in 1895, with a considerable number established during the past two years. The growth in Illinois has been somewhat less rapid, but marked; New York was credited with 484 in 1865, and 1624 in 1894; Vermont with 32 in 1874 and 250 in 1895. Some of these figures, notably in New York, include cheese factories. Iowa is now the leading state in the number of creameries and quantity of butter annually made. In 1880, the creamery butter reported in the United States census was only 3 1-2 per cent of the total, but in 1890 the proportion of butter made in creameries had increased to over 15 per cent. The total amount of butter annually produced in the United States is estimated to exceed 1400 million pounds.

The keen interest at present in the dairy world is evinced by the frequent and well-attended conventions, county, state and national. Nor are there lacking topics for discussion. In these days of sharp competition and earnest endeavor to enlarge the outlet for our liberal surplus of butter, and this is capable of still greater expansion, best methods of manufacture for quality, the possibilities in economic production, the fight against oleomargarine, and the capacity of foreign markets to buy in this country, are all fruitful sub-

The poor have little, the beggars none, the rich too much; enough, not one.

jects. In recent years prices of butter have ruled very much lower than formerly, and in the light of increased production, promise to so continue. Yet the cost to the farmer of making milk has never been as small, this doing much to equalize low butter prices. As with so many of the great farm staples,

WHAT IS MOST NEEDED IN BUTTER

Is an increased outlet. Naturally the greater part of this is to be found in the United States. The unfair competition of oleomargarine, an important factor of the last 20 years, is under better control to-day than ever before, yet much remains before the imitation article will be everywhere sold for just what it is, instead of parading in the guise of butter. No less important is the foreign outlet. This was very good 15 to 20 years ago, but fell off sharply in the early '90s, followed by a highly encouraging recovery the past two or three years, and never prosecuted with more energy than to-day. The United Kingdom has long been our best buyer, and for that matter is the greatest of all importers of dairy products. Covering a period of five years that country took more than 44 per cent of all the butter shipped from the United States; Canada 7 per cent, the West Indies 16 per cent, Germany 4 per cent. While such a large proportion of our total exports go to the United Kingdom, that buyer secures really a small percentage of her annual requirements in this country, depending chiefly upon Denmark, France, Sweden and Australia. The United Kingdom has increased her purchases of butter in foreign countries steadily for many years; this amounted to 1,500,000 cwts, approximately 3,000,000 tubs in 1887, 2,000,000 cwts in '90, and over 3,000,000 cwts or 6,000,000 tubs in '96, the 1897 figures not yet available, but fully as great, being 2,950,000 cwts for 11 mos ended Nov. '97.

Recent examinations and analyses show that our creamery butter averages very high in quality in comparison with the choicest grades from Denmark, Australia, France, etc. The prospect has never been more encouraging for a further growth of our butter export trade, not only in the United Kingdom, but in other parts of the world as well. Exports began more than half a century ago, the census of 1840 returning shipments to foreign countries of 425,000 lbs. This had increased to 3,876,000 lbs 10 years later, in 1860 exports were 7,640,000 lbs, 1865 21,560,000 lbs, the average value of the amount last named being 33.8c per pound. Following that date exports fell off for a time to feeble proportions, being only 2,020,000 lbs in 1870, and 6,400,000 lbs in 1875, recovering to about 22 million lbs in 1877, later years shown in detail in our table. Imports of butter are insignificant, small quantities filtering across the line from Canada. The rate of duty has alternated between 4 and 6c per pound for many years, the new tariff fixing it at the figure last named.

THE RECORD OF BUTTER MOVEMENT AND QUOTATIONS

At leading domestic markets, west and east, shows the liberal growth in the business and the general lowering of prices. In the subjoined statement, it should be said that a considerable proportion of the Chicago receipts are re-shipped to the east and rapidly distributed through trade channels, including the movement at New York and Boston, where the consumption is so great, the product rapidly passing out of sight.

DOMESTIC AND FOREIGN MOVEMENT OF BUTTER AND PRICES.

	Chicago.		New York.		Foreign trade in butter, year ended Jun. 30				
	Rec' pts pounds mil'ns and tenths.	Prices. Western extra creamery	Receipts, pounds. Millions and tenths.	Prices. Western extra creamery	Exports, pounds. Millions and tenths.	Av. val.	Im- ports, pounds	Av. val.	Rate of duty.
1897	225.5	14@23c	126.6	14@24c	31.3	14.3c	38,000	16.0c	4c
1896	236.8	15@24	129.6	15@26	19.4	15.2	52,000	16.4	4
1895	186.2	16@25	108.8	17@28	5.6	16.2	72,000	18.0	4
1894	167.4	15@27	93.8	17@28	11.8	17.5	144,000	16.2	6
1893	150.7	19@33	97.6	20@35	8.9	18.7	73,000	18.4	6
1892	154.1	17@31	99.8	17@32	15.0	16.3	114,000	14.5	6
1891	137.8	17@35	109.5	b22@26	15.2	14.5	381,000	15.4	6
1890	147.2	14@29	113.5	b20@23	29.7	14.0	76,000	18.0	4
1889	158.1	a16	122.6	b21@23	15.5	16.6	179,000	13.7	4
1888	103.5	a18	101.9	b24@26	10.5	18.0	143,000	18.4	4
1887	101.7	a15	100.7	b23@25	12.5	15.8	236,000	16.1	4
1886	106.2	a15½	98.9	b25@27	19.0	15.6	179,000	15.8	4
1885		16@40	99.4	b20@24	21.7	16.8	187,000	18.7	4
1884		a18	93.3	b20@25	20.6				
1883		a18	93.4	b20@26	12.3	18.6			
1882		a19	80.5	b28@32	14.8				
1881		a19	89.1	b24@27	31.6				
1880		18@37			39.2	17.1			

a Represents average price for all, low and high grades. b Average for western extra creameries.

THE DECLINE OF OLEOMARGARINE.

Restrictive state laws governing the manufacture of oleomargarine and a better understanding on the part of the people as to the composition of the product, are factors in the greatly reduced output of this compound compared with recent years. Testimony goes to show that in all probability the production of oleomargarine will not again soon show any such volume as in the early '90s, factories now turning off a third less than then. The national oleomargarine law, fixing a tax of 2c per lb on the product, went into effect November 1, 1886, when the annual production was about 35 million pounds. This increased steadily and rapidly until 1894, when tax was paid on nearly 70 million pounds. Since that year, however, there has been a steady decrease, the output in the year ended June 30, 1897, being 45,500,000 lbs. In the ten years and a fraction since the government has exercised supervision over the manufacture, 507 million pounds oleomargarine have been made, affording a revenue to the government of nearly \$12,700,000.

About 60 per cent of the oleomargarine is made at Chicago; Kansas City is also a large producer and so with Providence, which is included in the internal revenue district of Connecticut. Considerable quantities are made in Indiana and Ohio and small amounts in a few other states. Manufacturers are obliged to pay a special tax of \$600 annually, wholesale dealers \$480, and retail dealers at the rate of \$48, or \$2 per month. During the fiscal year 1897, there were 16 manufacturers; in 1896, 22; in 1897, retail licenses were paid by 3539 establishments, and in the previous year 4380. Naturally most of the retail stores where oleomargarine was sold over the counter were located in Illinois, with 1065; Ohio 394; Rhode Island, 315; Pennsylvania, 283; Michigan, 235; New Jersey, 167; Indiana, 121; Kentucky, 104, others scattering. In the following states not a single license was taken out to retail oleomargarine: California, Idaho, Iowa, Minnesota, Nebraska, Oklahoma, Oregon,

Hot things, cold things, sharp things, sweet things,—all rot the teeth.

South Dakota, Utah, Vermont, Wyoming. Exports of oleomargarine in 1897 were 4,864,351 lbs and in 1896, 6,063,699 lbs. Exports of oleo oil form a large business at a few of the big packing centers. This product is shipped in enormous quantities to Holland, Germany, the United Kingdom, West Indies and other countries, where it is used in the manufacture of imitation butter, known in those foreign countries under various names. In 1897 exports of oleo oil from the United States were 113,506,152 lbs, and in 1896, 103,276,756 lbs. The value of the annual exports of oleo oil and oleomargarine together has recently averaged nearly \$8,000,000.

PRODUCTION OF OLEOMARGARINE.

OLEOMARGARINE OUTPUT BY DISTRICTS.

Year ended June 30.	Production, Pounds.	Revenue to U.S.
1897	45,531,000	\$1,034,000
1896	50,853,000	1,219,000
1895	56,958,000	1,409,000
1894	69,622,000	1,723,000
1893	67,224,000	1,671,000
1892	48,364,000	1,266,000
1891	44,392,000	1,078,000
1890	32,324,000	786,000
1889	35,664,000	894,000
1888	34,326,000	864,000
*1887	21,514,000	724,000
Since stamp act.....	506,952,000	\$12,668,000

*From Nov. 1, 1886, to June 30, 1887.

U. S. Int. Rev. Dist.	Year ended Jun.30		Compar'g '97 & '96.
	1897.	1896.	
	lbs.	lbs.	lbs.
Connecticut	7,112,433	8,644,860	-1,532,427
1st Illinois	25,700,900	29,172,122	-3,471,222
6th Indiana	1,291,588	621,455	+ 670,133
Kansas	5,589,363	5,936,533	- 347,170
6th Missouri	346,372	688,487	- 342,115
Nebraska		1,611,240	-1,611,240
5th N.Jersey	261,871	67,224	+ 194,647
11th Ohio	3,452,314	2,190,753	+1,261,561
18th Ohio	1,776,366	1,743,535	+ 32,831
1st Penns'ia		177,025	- 177,025
To. yr's prod	45,531,207	50,853,234	-5,322,027

To Estimate Yield of Crops.

Frame together four light sticks, measuring exactly a foot square inside, and with this in one hand, walk into the field and select a spot of fair average yield, and lower the frame square over as many heads as it will inclose, and shell out the heads thus inclosed carefully, and weigh the grain. It is fair to presume that the proportion will be the 43,560th part of an acre's produce. To prove it, go through the field and make ten or twenty similar calculations, and estimate by the mean of the whole number of results. A similar plan will answer for other crops, but exact results cannot of course be obtained in this way.

Cheese Production and Outlet.

Roundly stated, the production of cheese in this country is a fifth that of butter. While not the most important branch of the dairy industry, cheese making and marketing occupies a very prominent place in a number of states. The bulk of cheese is made in N Y, Wis, O, Ill, Vt, Pa and Mich, in the order named. The annual cheese product of the U S approximates 265,000,000 lbs, imports 10,000,000 lbs, total about 275,000,000 lbs. Enough of domestic manufacture is sent abroad to leave annual domestic consumption some 200,000,000 lbs, or about three pounds per capita. While standard cheese is the product of whole milk, large quantities of skim cheese and filled cheese are turned off. Skim cheese is a legitimate food product, but it is to be deplored that at times such goods are sold as full cream, to the injury of the good reputation of American cheese. The traffic in filled cheese is even worse. In its manufacture oleo oil or lard is combined with skimmed milk, resulting in a cheese of fairly good appearance when fresh, yet generally undesirable.

In the manufacture of cheese, various sizes and shapes are in vogue, the bulk of the product being marketed in the form of "cheddars" and "flats." These are 14 to 16 inches in diameter and four to 12 inches thick, weighing 30 to 80 lbs, with an average of about 60 lbs. Flats are generally packed two in a box, when they are known as twins. A favorite in many markets is the Young America shape, 6 to 8 inches thick with much the same diameter, these being packed four in a box, and available at times for sale over the retail counter without the necessity of cutting, as they weigh only 8 to 12 lbs. It is urged in some quarters that a more general adoption of small sizes would result in an increased consumption. Good progress has been made in recent years in turning out varieties of cheese of the same general character as imported favorites, such as Edam, Stilton, Roquefort, Brie and Neufchatel. With the immeasurable capacity for manufacturing cheese in this country, the importance of an increased domestic consumption is readily apparent. The south is an enormous buyer of northern cheese, absorbing a very liberal part of the product.

THE IMPORTANCE OF THE FOREIGN TRADE,

On the other hand, can scarcely be overestimated. American cheese is only within the last two or three years beginning to recover from the decline in the export trade which held for such a long time. In reporting on the chief causes of the partial loss of our export trade in cheese, Major Alvord sums them up as follows:—First, restrictions placed upon the freedom of trade between the U S and Canada. Second, the energy and success of the Canadian government in developing and improving production of cheese in the Dominion. Third, the short-sighted policy of cheese makers in the U S in turning off so many poor goods and ignoring the demands of foreign customers. Fourth, the exportation of so much low-grade cheese or skims and the adulterated filled cheese in defiance of the requirements of the British markets and a consequent degradation of a well-earned reputation.

CHEESE MOVEMENT AND MARKET AND FOREIGN TRADE.

Yr.	Chicago.		New York.		Foreign Trade in Cheese, Yr. ended June 30				
	Receipts. Pounds. millions and tenths.	Prices cents full cream.	Receipts. Pounds. Millions and tenths.	Prices cents full cream.	Exports. Pounds. Millions and tenths.	Av. value. Cents.	Imports. Pounds. Millions and tenths.	Av. value. Cents.	Rate of Duty.
1897	84.1	7@11	79.9	7@12	50.9	9.1	12.3	13.5	4 c
1896	73.1	6@10	55.4	6@11	36.8	8.1	10.7	13.6	4 c
1895	58.3	7@11	62.8	6@12	60.4	9.1	10.3	14.1	4 c
1894	60.4	8@13	79.8	9@12	73.9	9.7	8.7	14.2	6 c
1893	59.3	7@12	78.5	9@12	81.4	9.4	10.2	14.0	6 c
1892	64.4	8@12	100.1	9@13	82.1	9.4	8.3	14.9	6 c
1891	63.9	7@12	89.3	a 10@11	82.1	9.0	8.9	15.3	6 c
1890	68.8	7@11	99.3	a 9@10	95.4	9.0	9.3	14.0	6 c
1889	56.8	a 9	96.5	a 10@11	85.0	9.3	8.2	13.8	4 c
1888	51.8	a 9	99.6	a 10@11	88.0	9.9	8.8	13.9	4 c
1887	44.3	a 9	99.7	a 11@12	81.3	9.3	6.6	13.3	4 c
1886	35.9	a 8	97.1	a 9@11	91.9	8.3	6.3	13.5	4 c
1885		a 9	106.1	a 8@10	112.0	9.3	6.2	15.4	4 c
1884		a 10	120.3	a 9@12	112.9	—			
1883		a 11	122.8	a 11@13	99.2	11.2			
1882		a 11	117.6	a 10@13	128.0	—			
1881		a 11	144.0	a 11@13	148.0	—			
1880		a 9	—		127.6	9.5			

a Average price for year.

Better slip with foot than tongue.

Cheese exports have been important for a great many years. As long ago as 1840, exports were 519,000 lbs, mounting to 13 million pounds in 1850, 15 in 1860, 53 in 1865, jumping to over 100 in 1876, with the high water mark in 1881, when 148,000,000 lbs were sent abroad. Following this was a serious decline, rapid and steady, in the last few years, until scant 37,000,000 lbs were exported in 1896. The exports last year, however, were very much better, even at a higher average price. During the period when our cheese trade was declining, Canada's was rapidly increasing. In 1881-1885 this averaged over 61,000,000 lbs annually; the next five years 84, five years following 130, increasing to 155 millions in '94, subsequently falling off somewhat. Millions of pounds of cheese made in the U S are annually shipped to Canada, thence re-exported, no doubt much of this under cover of the superior reputation of Canadian cheese. The number of cheese factories in Canada increased from less than a dozen in 1865 to 1565 in 1891. Canada prohibits by law the manufacture of skim cheese or filled cheese.

FILLED CHEESE.

To protect the dairy industry against the filled-cheese fraud, it was necessary to pass a national law in the summer of 1896, which went into effect in September of that year. This provides that a stamp tax of 1c per pound shall be paid on all filled cheese made and sold, that manufacturers shall pay an annual tax of \$400, wholesale dealers \$250 and retailers \$12. There are only seven factories in the business and these are all located in Illinois. Retailers taking out licenses to deal in filled cheese numbered 62, of which 29 were in Louisiana, 19 in Maryland, the remainder scattering. During the nine months ended June 30, 1897, 1,663,000 lbs filled cheese were produced, all going into home consumption.

TO CONVERT QTS. OF MILK INTO LBS.

Qts.	Lbs.	Qts.	Lbs.	Qts.	Lbs.	Qts.	Lbs.
1	2.15	29	62.3	57	122.4	85	182.5
2	4.3	30	64.4	58	124.5	86	184.6
3	6.4	31	66.5	59	126.6	87	186.8
4	8.6	32	68.7	60	128.8	88	188.9
5	10.7	33	70.8	61	130.9	89	191.0
6	12.9	34	73.0	62	133.1	90	193.2
7	15.0	35	75.1	63	135.2	91	195.3
8	17.2	36	77.3	64	137.4	92	197.5
9	19.3	37	79.4	65	139.5	93	199.6
10	21.5	38	81.6	66	141.7	94	201.8
11	23.6	39	83.7	67	143.8	95	203.9
12	25.8	40	85.9	68	146.0	96	206.1
13	27.9	41	88.0	69	148.1	97	208.2
14	30.1	42	90.2	70	150.3	98	210.4
15	32.2	43	92.3	71	152.4	99	212.5
16	34.3	44	94.5	72	154.6	100	214.7
17	36.5	45	96.6	73	156.7	200	429.3
18	38.6	46	98.7	74	158.8	300	644.0
19	40.8	47	100.9	75	161.0	400	858.6
20	42.9	48	103.0	76	163.1	500	1073.3
21	45.1	49	105.2	77	165.3	600	1288.0
22	47.2	50	107.3	78	167.4	700	1502.6
23	49.4	51	109.5	79	169.6	800	1717.3
24	51.5	52	111.6	80	171.7	900	1931.9
25	53.7	53	113.8	81	173.9	1000	2146.6
26	55.8	54	115.9	82	176.0		
27	58.0	55	118.1	83	178.2		
28	60.1	56	120.2	84	180.3		

TO CONVERT MILK FROM LBS. TO QTS.

Lbs.	Qts.	Lbs.	Qts.	Lbs.	Qts.	Lbs.	Qts.
1	.47	29	13.5	57	26.6	85	39.6
2	.93	30	14.0	58	27.0	86	40.1
3	1.40	31	14.4	59	27.5	87	40.5
4	1.86	32	14.9	60	28.0	88	41.0
5	2.33	33	15.4	61	28.4	89	41.5
6	2.80	34	15.8	62	28.9	90	41.9
7	3.26	35	16.3	63	29.4	91	42.4
8	3.73	36	16.8	64	29.8	92	42.9
9	4.19	37	17.2	65	30.3	93	43.3
10	4.66	38	17.7	66	30.8	94	43.8
11	5.13	39	18.2	67	31.2	95	44.3
12	5.59	40	18.6	68	31.7	96	44.7
13	6.06	41	19.1	69	32.2	97	45.2
14	6.52	42	19.6	70	32.6	98	45.7
15	6.99	43	20.0	71	33.1	99	46.1
16	7.46	44	20.5	72	33.6	100	46.6
17	7.92	45	21.0	73	34.0	200	93.2
18	8.39	46	21.4	74	34.5	300	139.8
19	8.85	47	21.9	75	35.0	400	186.4
20	9.32	48	22.4	76	35.4	500	233.0
21	9.79	49	22.8	77	35.9	600	279.6
22	10.3	50	23.3	78	36.3	700	326.2
23	10.7	51	23.8	79	36.8	800	372.8
24	11.2	52	24.2	80	37.2	900	419.4
25	11.7	53	24.7	81	37.7	1000	466.0
26	12.1	54	25.2	82	38.2		
27	12.6	55	25.6	83	38.7		
28	13.1	56	26.1	84	39.1		

The only cheap experience is that of others.

The Milk Traffic.

Its Enormous Proportions and Value.

ANNUAL RECEIPTS (QUARTS).

ANNUAL VALUE.

	*Boston.	New York.	†Phila.	At Boston.	Per qt	Tot. value.
1897	97,819,000	326,188,000	‡71,521,000	To the consumer,	6 cts	\$5,869,140
1896	87,942,000	*309,071,000	96,475,000	Net to farmer,	2½	2,445,470
1895	82,326,000	*302,710,000	96,219,000	*Margin to middleman,	3½	3,423,670
1894	82,199,000	299,171,000	98,539,000			
1893	76,155,000	269,266,000	94,540,000	At New York.		
1892	71,514,000	262,977,000	91,278,000	To the consumer,	6½	\$21,202,200
1891	82,055,000	244,614,000	88,595,000	Net to farmer,	2	6,523,700
1890	79,744,000	229,276,000	89,258,000	Margins,	4½	14,678,500

*Year ending Sept 1. †For calendar year.

‡Nine mos. to Oct. 1.

Chicago Receipts, 1897, about 200,000,000 qts

* This margin includes shrinkage on surplus milk; it is not all clear for the middleman.

SIX YEAR RECEIPTS AND SALES OF MILK, BOSTON MARKETS.

Statement of totals in cans of 8½ qts. Year ending Aug. 31.	Total 1896-7.	Total 1895-6.	Total 1894-5.	Total 1893-4.	Total 1892-3.	Total 1891-2.
Outside receipts	374,111	397,171	795,014	1,076,959		
Contractors' receipts	11,134,002	9,948,972	8,874,174	8,593,568		
Total receipts	11,508,113	10,346,143	9,685,464	9,670,527	8,959,457	8,413,458
Outside sales	315,233	322,890	1,174,191	1,037,057		
Contractors' sales	8,237,641	7,772,456	6,671,663	6,690,817		
Total sales	8,552,874	8,095,346	7,745,854	7,727,874	7,222,683	6,840,123
Outside surplus	58,878	74,379	97,984	39,812		
Contractors' surplus	2,895,361	2,176,516	1,725,360	1,902,841		
Total surplus	2,954,239	2,250,895	1,823,344	1,942,658	1,769,088	1,573,338
SURPLUS STATEMENT.						
Gross surplus	2,895,361	2,176,516	1,728,239	1,902,771	1,769,088	1,769,082
α 5% contractors' surplus	411,877	388,622	546,905	669,080	*611,257	*684,013
Net surplus	2,477,283	1,787,894	1,177,334	1,233,475	1,043,484	889,321
Average daily supply	30,583	28,268	24,539	23,544	24,624	23,050
Average daily sales	22,639	21,236	19,149	18,381	19,737	18,741
Average daily surplus	7,859	5,946	4,784	5,213	3,554	4,315
Net surplus equals day's supply	*6.68	*5.27	*3.88	*4.37		
Charged back—days	80.75c	59.5	37	53	42	
Price of surplus per can	12.9c	*13.37c	*15.12c	*17c		17.8c
Per cent. total surplus	26	21	18.8	20.0		

* Average for each month. α Prior to 1894-5, the contractors carried 10% of the sales. Until Jan. 1, '98, they carried 5% of the sales. After this date, they won't carry any of this surplus unless forced to do so, when the same price is fixed Apr. 1, '98.

GREATER NEW YORK'S MILK RECEIPTS.

This table shows the number of 40-quart cans of milk, including cream and condensed milk, carried by the different railroads into the markets of Greater New York in the calendar years, as returned to the Milk Reporter. The first column shows the increase or decrease in the traffics of 1894 over 1895, and the second column shows the distance milk was hauled in 1897. The freight rate is graded as to distance.

Railroad and milk route.	Changes in '94 compared to '85.		Miles hauled.	Fgt. rate '97 per can of 40 quarts.	Cans 40 quarts hauled.		
					1894.	1895.	1896.
Erie	Inc.	14%	40 to 250	23-26-29-32	1,613,000	1,534,866	1,538,670
Harlem	Dec.	3%	20 " 125	30	845,020	880,635	841,539
Ontario	Inc.	58%	40 " 350	26-29-32	1,667,810	1,270,937	1,430,459
Susquehanna	Inc.	53%	40 " 100	23-26-29	658,300	685,209	657,230
Northern	Dec.	35%	15 " 40	25	297,850	222,670	106,405
New Haven	Dec.	28%	30 " 166	28	284,850	286,491	430,830
D. L. & W	Inc.	1,091%	30 " 400	23-28-29-32	1,649,800	1,897,135	1,963,038
Long Island	Dec.	65%	15 " 35	26	57,200	50,380	38,040
Central R. R. of New Jersey	Dec.	52%	20 " 60	28	76,000	85,079	94,670
Nearby routes	Dec.	33%	15 " 40	25	215,000	250,864	241,650
Other sources	Inc.	100%	20 " 100	15-25	216,000	217,450	219,600
Total	Inc.	57%	15 " 300	15-32	7,581,160	8,027,040	8,295,616

OUR DAIRY DEPARTMENT.

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At Chicago, the milk shippers' union estimates that the average daily receipts equal 16,000 cans of 8 gals each, 480,000 monthly and 5,760,000 yearly.

Prices of Milk.

AT BOSTON.—WINTER OF 1897-8.

In cents, per can, of 8½ qts.

Distance from Boston.	This winter, 1897-8.			Last winter, 1896-7.		
	Country Price.	Freight & Com.	Boston Price.	Country Price.	Freight & Com.	Boston Price.
Under 17 miles,	28	5	33	28	7	35
18 to 23 "	27	6	33	27	9	35
24 to 36 "	26	7	33	26	9	35
37 to 56 "	25	8	33	25	10	35
57 to 76 "	24	9	33	24	11	35
Over 77 "	23	10	33	23	12	35

AT BOSTON.—WINTER OF 1896-7.

Miles from Boston.	10 to 17	18 to 23	24 to 36	37 to 56	57 to 76	77 to 110
Price in Boston, per can,	35 c	35 c	35 c	35 c	35 c	35 c
Freight & commission. "	7	8	9	10	11	12
Country price, av. "	28	27	26	25	24	23
" " Oct. "	28	27	26	25	24	24
" " Nov. "	30	28	28	27	26	24
" " Dec. "	30	28	28	27	26	24
" " Jan. "	27	27	25	24	23	22
" " Feb. "	27	26	25	25	23	22
" " March. "	26	26	24	23	22	22
Net surplus per cent.	24	24	24	24	24	24
" " av. price, "	14.3	14.3	14.3	14.3	14.3	14.3
" " loss on, "	2.7	2.6	2.4	2.2	2.0	1.8
Net price to farmer, "	25.3	24.4	23.6	22.8	22.0	21.2
" " " per qt.	2.98	2.87	2.8	2.7	2.6	2.5

AT BOSTON.—FOR THE SUMMER OF 1897.

Miles from Boston,	10 to 17	18 to 23	24 to 36	37 to 56	57 to 76	77 to 110
Price in Boston. per can.	33 c	33 c	33 c	33 c	33 c	33 c
Freight & com. "	7	8	9	10	11	12
Country price, av. "	26	25	24	23	22	21
" " Apr. "	26	25	24	23	22	21
" " May, "	25	23	22	21	19	19
" " June, "	25	23	22	21	19	19
" " July, "	26	25	24	23	22	21
" " Aug. "	27	27	26	25	25	23
" " Sept. "	27	27	26	25	23	23
Net surplus, per cent.	28	28	28	28	28	28
" " av. price, "	11.6	11.6	11.6	11.6	11.6	11.6
" " loss on, "	3.5	3.4	3.0	2.8	2.6	2.3
Net price to farmer, "	22.5	21.6	21.0	20.2	19.4	18.7
" " " per qt.	2.7	2.6	2.5	2.4	2.3	2.2

AVERAGE ANNUAL NET PRICES AT COUNTRY STATIONS, LESS SURPLUS.

Dist. from Boston,	1896-7.	1895-6.	1894-5.	1893-4.	1891-2.
Under 17 miles,	22.3	24.4	25.5	25.2	26.2
18 to 23 "	21.3	23.4	24.9	24.4	25.2
24 to 36 "	20.3	22.4	23.0	23.4	24.2
27 to 56 "	19.3	21.4	22.9	22.4	23.2
57 to 76 "	18.3	20.4	21.9	21.4	22.2
77 to 110 "	17.3	19.4	20.9	20.4	21.2
Av. all distances,	19.8	21.9	23.2	22.9	23.7

The net decline in price of milk to N. E. producers between 1892 and 1897 was 3.9 cents per can, or 17 %.

No rose without thorns.

AT BOSTON, FOR A PERIOD OF YEARS.

Seasons.	Summer.	Winter.	Yearly Average at Boston.	
	Apr. 1 to Oct. 1.	Oct. 1 to Apr. 1.	Per can, 8½ qts.	Per quart.
1897-8	33 cents.	α 33 cents.	33c	3.9c
1896-7	33 "	35 "	34	4.0
1895-6	33 "	37 "	35	4.1
1894-5	33 "	37 "	35	4.1
1893-4	33 "	37 "	35	4.1
1892-3	33 "	37 "	35	4.1
1891-2	33 "	37 "	35	4.1
1890-1	32 "	36 "	33	3.9
1889-90	32 "	38 "	35	4.1
1888-9	32 "	38 "	35	4.1
1887-8	30 "	36 "	33	3.9
1886-7	30 "	36 "	33	3.9
1885-6	30 to 32 "	36 to 37 "	34	4.0
1884-5	34 "	42 "	38	4.5
1883-4	35 "	40 "	39	4.6
1882-3	35 "	43 "	38	4.5

α Beginning Oct. 1, 1897, the contractors' margin is 2c less than formerly; it had been so in reality for more than two seasons.

WHOLESALE PRICES OF MILK IN THE NEW YORK MARKETS.

Yr.	Apr.	May.	June	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Total	Mo av
1868	4½	3½	3	3½	4	4	5	6½	7	6	6	5½	58	4.83
1869	4½	3½	3	3½	4	4	5	6	6	5	5	4½	56	4.66
1870	4	3½	3	3½	4	4	6	6	6	5	4½	4	53½	4.47
1871	4	3	3	3	3	3	3½	5	5	4½	4½	4½	46	3.83
1872	4	3	3	3	3	3	4	5	5	5	4	4	46	3.83
1873	4	2½	2½	3	3	3	4	4½	4	4	4	4	43	3.58
1874	3½	3	2½	3	3	3½	3½	4	4½	4	4	4	42½	3.56
1875	3½	3	3	3	3	3	4	4	4½	4	4	3½	42½	3.54
1876	3	3	2½	3	3	3	3½	4	4	4	3½	3	39½	3.29
1877	3	2½	2½	2½	2½	3	4	4	4	4	3½	3	38½	3.20
1878	3	2	2	2½	2½	2½	2½	3	3½	3	2½	2½	30½	2.56
1879	2½	2	2	2	2	2	2½	3½	3½	3½	3	3	31½	2.62
1880	3	2	2	2½	2½	2½	3	4	4	3½	3½	3	35½	2.95
1881	3	2	2	2	2½	3	4	5	4½	4	4	3½	39½	3.29
1882	3	2½	2½	2½	3	3½	3½	3½	4½	4½	3½	3½	40½	3.37
1883	3	2½	2½	3	3	3½	3½	4½	4½	4½	3½	3½	41½	3.45
1884	3½	1½	2½	3	3	3½	3½	4	4	3½	3½	3	39½	3.29
1885	3	2½	2½	3	3	3	3	3½	4	3½	3½	3	37	3.08
1886	3	2	2	2½	2½	2½	3½	3½	3½	3½	3	3	34½	2.87
1887	3	2½	2	2	2½	2½	3	3½	3½	3½	3½	3	35	2.91
1888	3	2½	2	2½	2½	2½	3	3½	3½	3	3	3	33½	2.80
Av.	3.36	2.61	2.50	2.79	2.91	3.10	3.77	4.30	4.40	4.04	4.07	3.55	41.18	3.43
1889	2½	2	2	2	2	2½	2½	3	3½	3½	3½	3	31½	2.59
1890	2½	2	2	2	2½	2½	2½	2½	3½	3	3	2½	30½	2.57
1891	2½	2½	2	2	2½	2½	3	3½	3½	3½	3	3	32½	2.71
1892	2½	2½	2	2	2½	2½	3	3½	3½	3½	3½	3½	32½	2.71
1893	2½	2½	2	2½	2½	3	3	3	3	3	2½	2½	33½	2.76
1894	2½	2	1½	2	2½	3	3½	3½	3	2½	2½	2½	31½	2.59
1895	2½	2	2	2	2½	2½	3	3	3	3	2½	2½	30½	2.54
1896	2½	2	1½	2	2½	2½	2½	2½	2½	2½	2½	2½	27½	2.28
1897	2½	2	1½	2	2	2½	2½	3						

Chicago prices of milk delivered at railroad depot in the city per 8-gallon can: In 1897—January 90c, February 80c, March and April 75c, May and June, 65c, July 70c, August 75c, September 80c, October 85c, November and December \$1; in 1898, so far as established by the producers' union, January \$1, February, March and April 90c.

Retail prices being from 5 to 10c per quart in all markets.

The Springfield Massachusetts co-operative milk association began business in 1885, when it received 1,886,000 quarts of milk and sold 600,000 quarts

Many dishes, many diseases.

from its carts. In the year ending February 1, '96, it received 3,045,000 quarts, selling 665,000 from its own carts, balance to other peddlers or made into butter. The monthly price per quart paid to producers for all their milk taken at their door, and washed cans returned (furnished by the association) was for 1885 an average of 2.83c, and yearly since has averaged 2.61c, 2.81c, 2.85c, 2.90c in 1889; 2.78c, 2.89c, 2.97c, 2.98c, 2.79c, 2.81c for 1895 and 2.55c for 1896. Prices for 1897 were: January 2 1-2c, February 2 1-4c, March 2 1-4c, April 2 1-4c, May 2 1-4c, June 2 1-4c, July 2 1-4c, August 2 1-4c, September 2 1-2c, October 2 1-2c.

The New York Milk Business.

Between the efforts to form a trust of dealers in the city and a combination of producers in the country, some improvement is hoped for in present unsatisfactory conditions in this vast traffic. At present the milk exchange, which is composed of a few of the larger dealers and some producers, "fixes the price of milk shipped to the New York market" monthly or oftener. This exchange price includes the freight. On milk from west of the Hudson river, five cents per can is deducted from this price as an "allowance" for ferriage or transfer. The cans hold 40 quarts, and are generally furnished by the shipper; there is much complaint of lost cans. Instead of the uniform freight rate of 32c per can of forty quarts that had prevailed for years (except that a very short haul near market was charged 25c), the interstate commerce commission decreed in March, 1897, a 23c rate for all stations in the zone within 40 miles of the terminal at New York city, Jersey City, etc; between 40 and 100 miles, 26c; between 100 and 190 miles, 29c; beyond 190 miles, 32c. Milk is hauled 400 miles to the New York market, and 135 miles to Boston. The exchange price is based on zone B; thus \$1.31 per can, less freight 26c and ferriage 5c, nets the producer \$1 per can, or 2 1-2c per quart if he gets the full market price. Hence, \$1.31 per can is said to make "the exchange price 2 1-2c per quart." How this operates at various distances is shown by the following table:

FREIGHT ZONES AND RATES FOR NEW YORK MILK.

ZONES.	A	B	C	D
Miles from market.....	40	41 to 100.	101 to 190	Over 190.
Freight rate per can of 40 quarts, in cents.....	\$0.23	\$0.26	\$0.29	\$0.32
Add for ferriage on milk delivered on west side of the Hudson, per can.....	0.05	0.05	0.05	0.05
Total cost of getting milk to market from west side of river.....	0.28	0.31	0.34	0.37
Suppose exchange price at New York is, per can...	1.51	1.31	1.31	1.31
Deducting freight and ferriage leaves net price at farmers' stations, per can.....	1.03	1.00	.97	.94
Equal to cents per quart.....	2.53c	2.5 c	2.425 c	2.35 c
The various exchange prices during the past year have been.....				
Jan., \$1.41 p can, equal cts p qt at farmers' depot	2.78	2.75	2.675	2.60
Feb., 1.36	2.655	2.625	2.55	2.475
March, 1.26	2.405	2.375	2.30	2.225
April, 1.16	2.155	2.125	2.05	1.975
May, 1.11	2.03	2.00	1.925	1.85
June, 1.01	1.78	1.75	1.675	1.60
July and				
Aug., 1.16	2.03	2.00	1.925	1.85
Sept., 1.21	2.28	2.25	2.175	2.10
Oct., 1.31	2.53	2.50	2.425	2.35
Nov. and				
Dec., 1.51	3.03	3.00	2.925	2.85

Milk delivered on east side of Hudson saves the 5 cents ferriage, and this nets one-eighth cent per quart more than the above prices.

Instead of shipping direct to dealers who pay the full exchange price, many farmers sell to a creamery at their local railroad station that is operated by a city dealer. In such cases, the farmer often agrees to accept 1-4c or 1-2c per quart less than the exchange price. In other words, these farmers got 1-4 to 1-2c less than the above prices, so that some in zone D got only 1.01c per quart for June milk. In consideration of this discount, the creamery usually agrees to take all the milk, whereas one who ships to a peddler may have to keep at home his surplus, or accept what it will sell for at auction on the railroad platform at the city terminal, unless the dealer agrees to pay full price for all he sends. If the supply is over large, the exchange reduces the price, so that dealers practically control both ends of the trade. In all cases the producer bears the labor or the cost of hauling the milk from the farm to the local shipping station or creamery.

AVERAGE ANNUAL PRICES OF MILK, BUTTER AND CHEESE.

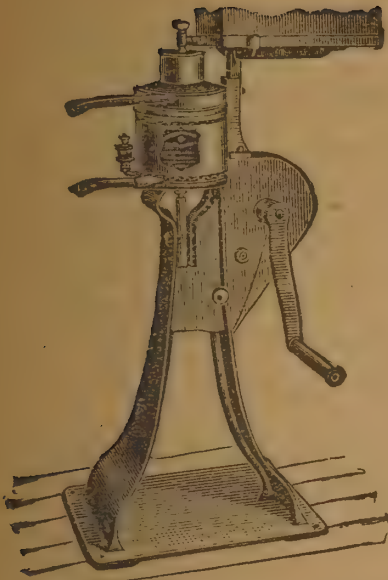
Average annual wholesale price paid producers for milk on the New York city market, but the net price received by farmers varied according to distance from market; compiled from *American Agriculturist* market record. Butter and cheese prices 1860-91 are annual averages of prime, taken from U. S. finance committee's report since 1891. Yearly averages at Elgin, Ill., are taken for butter, and of prime state cheese at New York city. The last three columns show the relative values on the basis of 100 representing the average value in 1860. Prices are in currency, which from 1862-78 was at a discount compared to gold.

	Av. actual prices.			Relative Prices.				Av. actual prices.			Relative Prices.		
	Milk	But'r	Cheese	Milk	But'r	Cheese		Milk	But'r	Cheese	Milk	But'r	Cheese
	c p qt	c p lb	c p lb.					c p qt	c p lb	c p lb.			
1860	3.67	20	11	100	100	100	1879	2.62	25	9	71	124	85
1861	3.50	16	11	95	81	100	1880	2.95	31	14	80	157	125
1862	3.90	18	8	106	91	70	1881	3.29	30	14	90	148	128
1863	4.25	23	12	116	117	110	1882	3.27	35	15	92	176	133
1864	4.42	29	15	120	145	140	1883	3.45	36	15	94	181	135
1865	5.13	50	25	140	250	225	1884	3.29	31	14	90	155	128
1866	5.00	40	20	136	202	180	1885	3.08	26	14	84	131	125
1867	4.38	37	16	132	183	145	1886	2.87	30	11	78	150	100
1868	4.83	40	16	132	202	145	1887	2.91	26	14	79	131	128
1869	4.66	44	21	127	221	190	1888	2.80	27	13	76	133	118
1870	4.47	35	19	122	179	175	1889	2.87	27	13	78	138	115
1871	3.83	35	15	104	179	140	1890	2.63	23	11	71	117	100
1872	3.83	30	15	104	152	133	1891	2.69	26	10	72	129	91
1873	3.58	29	15	98	145	133	1892	2.68	25	11	72	125	100
1874	3.56	29	15	97	145	133	1893	2.79	26	11	76	129	100
1875	3.54	35	17	96	174	150	1894	2.62	22	11	71	110	100
1876	3.29	30	14	90	148	128	1895	2.52	21	9	68	105	82
1877	3.20	30	16	87	150	143	1896	2.34	18	9	64	90	82
1878	2.56	30	14	70	150	128	'97a	2.56	17	10	70	85	91

a To October 1. On Page 529 it is shown that New England farmers shipping to Boston market in '97 netted 17% less for their milk than in 1892.

Organizations in the Milk Business.

New England milk producer's union, composed of shippers to Boston and nearby markets.—President, Charles A. Gleason of New Braintree, Mass; vice presidents, J. C. Bartlett of New Market, N H, and C. B. Cox of Woodstock, Ct; secretaries, G. S. White of Putney, Vt, G. B. Whittaker of Boston; treasurer, M. P. Palmer of Groton. Directors, the foregoing and J. W. Sanborn of Gilmanton, N H; N. J. Batchelder of Andover, N H; G. M. Cory of Saxton's River, Vt; Lewis Hayward of Pomfret, Ct; John Hall of New Berwick, Me; John E. McClellan of Grafton, Mass; Herman Chatman of Plainfield, Ct; O. E. Patch of Concord, Mass; A. P. Clarke of Barre, Mass. Business manager pro tem, John A. McClellan of North Grafton, Mass. Annual meeting at Boston in January.



Remember that the

IMPROVED

UNITED STATES CREAM SEPARATOR

**Holds the Records for the Best
Average Skimming.**

SCIENTIFIC TESTS.

When reading statements from practical dairymen, giving their experience in continued use of the Improved U. S. Separators, remember that if you require proof of efficiency, from scientific experimenters, we can give you an abundance of such records, as follows, from the different State Experiment Stations :

Note a Few 1897 Tests of Skimmilk,

Maine,	Feb. 2.....	0.03	Cornell,	In 23 tests, Jan. 7 to March 12,	
	" 9.....	0.04		9 showed only.....	Trace
Vermont,	Jan. 13.....	0.01		14 " ".....	0.03 to 0.05
	" 28.....	0.02	Wisconsin,	Jan. 4.....	0.03
	" 29.....	0.03		" 5.....	0.02
	" 30.....	0.04		" 21.....	0.03
New Hampshire,	Feb. 10.....	0.01	South Carolina,	April 23.....	0.04
	" 19.....	0.04		" 24.....	0.05
Massachusetts,	Feb. 18.....	0.01		" 30.....	0.04
	" 12.....	0.03	Michigan,	Mar. 10.....	0.03
Illinois,	Mar. 12.....	0.01		" 10.....	0.05
	" 15.....	0.005		May 19.....	0.06
Ohio,	Jan. 15.....	0.02	Nebraska,	Jan., 1897, to Mar.,	
	Feb. 2.....	0.00		1897.....	0.05
	" 15.....	0.02	Minnesota,	June, 1897.....	0.03 0.03 0.03
	18 tests not over.....	0.05		Average of 9 runs.....	0.05

Read the list and then note the testimonials from these very Stations, and the detailed records published in our pamphlets, which we furnish free on application.

Improved U. S. Turbine at Connecticut Station.

New Haven, Conn., August 3, 1897.

The Improved U. S. Steam Turbine is running every day, and has been since April. It is an easy running and thorough skimming machine.

In two recent tests made on different days, running a trifle over 700 lbs. of milk per hour, the skimmilk showed:

No. 1, 0.06 of 1 per cent. butter fat.

No. 2, 0.07 " " " "

This is as close as any one could ask for.

A. W. OGDEN, Chemist,

Conn. Agr'l Experiment Station.

Manufactured by

THE VERMONT MACHINE CO.,

BELLOWS FALLS, VT.

New England dairy association, composed of contractors who handle the wholesale milk trade of Boston.—President, George O. Whiting; secretary, Henry J. Walcott, 386 Tremont street, Boston.

Five states milk producers' association, designed to embrace all producers from the markets of greater New York. Preliminary re-organization in December '96 and March '97 upon the Boston plan.—President pro tem, Irving Holcomb of Butternut Grove, Delaware Co, N Y; secretary and manager, L. H. S. Martin of Augusta, Sussex Co, N J; treasurer, J. E. Hoag of Clinton Corners, Dutchess Co, N Y.

Consolidated Milk exchange, composed of a limited number of wholesale and retail dealers, who at irregular intervals "establish the exchange price" of milk in Greater New York; Jersey City address, 76 Montgomery St; New York city address and office, 6 Harrison St.

Philadelphia milk exchange, composed of city dealers who meet fourth Wednesday in each month to fix the price of milk for the ensuing month.—President, C. Henderson Supplee; vice president, Peter Hering; treasurer, T. W. Kester; secretary and manager, J. H. Miller of 1009 Columbia ave, Philadelphia.

Pennsylvania and New Jersey milk producers' union, composed of producers for the Philadelphia market.—President, George Wilde of New Egypt, New Jersey.

Chicago milk shippers' union, composed of producers for that market, and operating somewhat upon the Boston plan. It aims also to reduce losses from bad debts for milk shipped to irresponsible dealers. It claims a large membership among the 3000 shippers along the 20 lines of railway that haul milk into Chicago.—President, Hiram Holcomb of Sycamore; Ill; vice president, William Middlecamp of Somers, Wis; treasurer, B. G. Richmond of Ellburn, Illinois; secretary and manager, S. Hill of Crown Point, Ind, whose office is at the union's headquarters, 121 La Salle St, Room 67, Chicago. Directors, the foregoing and one representative from each railroad carrying milk into the city—Kenosha and Rockford division, C and N W railway, B. S. Benson of Genoa Junction, Wis; C & Great Western, C. W. Balcom of Wasco, Ill; old line C and N W, E. S. Wilcox of Union, Ill; Wisconsin division, C & N W, Fred Kirshner of Barrington, Ill; C and Eastern Ill railway, William Rump of Beecher, Ill; air line C and N W, G. A. Barbes of La Fox, Ill; C and Grand Trunk, Wm Sykes, of Hobart, Ind; west line, Ill Central, L. Schirrer of Burlington, Ill; main or south line, Ill Central, H. La Rocque of Manito, Ill; Wisconsin Central, John Bohm of Trevor, Wisconsin; main line C M & S P, William Middlecamp of Somers, Wisconsin; southwest division C M & S P, A. B. Hayes of Union Grove, Wisconsin; C R I & P, N. P. Cooper of New Lenox, Ill; Libertyville division C M & S P, E H Broun, Libertyville, Ill; C B & Q, A Houstman of Naperville, Ill; C & Erie, A J Gerloch of Crown Point, Ind; B & O, L Robbins of McCool, Indiana; P F W & C, M. Marquet of Wheeler, Indiana.

To Photograph Animals.

For best photographs, a long focus lens is needed. Avoid a too close range. Choose a moderately cloudy day from eight to ten a. m., or three to five p. m. Get the animal into as natural a position as possible, and into such an angle with the sun that the creature will appear rounded and illumined.

The Poultry Industry.

The magnitude of this most important branch of agriculture is little appreciated by the casual reader, yet the millions of dollars represented in the annual product of poultry and eggs go far toward making up the farmers' profits of the year. In an investigation made not long ago by *American Agriculturist*, it was brought out that there is a permanent investment in this industry of about \$340,000,000, comparing very favorably with some of the great cereals, and with various branches of live stock. A rapid growth has been made in recent years, particularly since the date of the last federal census, from which the figures in the subjoined table of poultry and egg product were taken. Inasmuch as the census includes only poultry on farms, the business is really very much greater than indicated, counting in towns and villages

POULTRY AND EGG PRODUCT, U. S. CENSUS OF 1890.
(In thousands.)

NORTH ATLANTIC STATES.						NORTH CENTRAL STATES.					
	Fowls. No.	Trk'ys No.	Ge'se. No.	Ducks. No.	Eggs. Doz.		Fowls. No.	Trk'ys No.	Ge'se. No.	Ducks. No.	Eggs. Doz.
Me.....	1,411	15	7	27	9,384	Ohio...	13,659	521	277	410	70,162
N. H....	934	10	3	17	5,049	Ind.....	12,308	505	435	348	48,622
Vt.....	789	72	11	13	4,515	Ill.....	21,464	1,044	726	736	60,351
Mass....	1,624	6	8	71	8,931	Mich....	5,853	186	73	99	34,310
R. I....	482	12	17	14	2,021	Wis....	5,646	206	130	91	29,391
Ct.....	1,075	30	5	31	5,638	Minn....	4,449	151	69	75	20,354
N. Y....	8,422	403	80	301	45,807	Ia.....	20,202	941	262	547	69,448
N. J....	2,991	162	20	114	8,032	Mo.....	22,786	929	849	628	53,147
Pa.....	10,382	536	106	357	50,050	N. Dak.	804	34	10	12	3,553
Total	28,110	1,246	258	945	139,427	S. Dak.	2,293	60	22	49	8,778
SOUTH ATLANTIC STATES.						Neb....	7,396	219	70	275	23,301
Del.....	900	71	11	50	2,219	Kan....	15,843	530	118	485	42,585
Md.....	3,431	279	91	233	8,719	Total.	132,702	5,326	3,041	3,754	464,002
D. C....	11	—	—	—	48	WESTERN STATES.					
Va.....	6,576	477	216	299	13,558	Mont....	234	5	1	4	834
W. Va..	3,197	215	177	134	9,920	Wyo....	74	2	—	2	332
N. C....	7,508	197	376	169	11,756	Col.....	711	21	1	12	2,685
S. C....	3,874	149	122	47	5,702	N. M....	61	1	—	1	280
Ga.....	7,358	149	292	106	11,523	Ariz....	57	3	—	2	204
Fla.....	920	34	38	9	2,789	Utah....	280	9	1	6	1,131
Total.	33,774	1,571	1,321	1,047	66,233	Nev....	62	4	1	3	171
SOUTH CENTRAL STATES.						Ida.....	232	7	1	7	738
Ky.....	12,741	672	967	370	24,691	Wash..	780	17	6	14	2,711
Tenn....	12,062	430	778	362	23,172	Ore.....	1,181	44	21	32	4,454
Ala....	6,252	178	381	103	10,824	Cal.....	3,504	288	38	158	13,679
Miss....	5,632	194	475	64	11,393	Total.	7,175	400	71	241	27,219
La.....	2,247	75	149	67	5,934	Total	258,871	10,754	8,440	7,544	819,723
Tex....	11,524	536	528	391	32,466	U. S.					
Okla....	388	10	1	4	990						
Ark....	6,264	119	469	196	13,372						
Total.	57,110	2,210	3,749	1,557	122,842						

The production of poultry yards is all wanted at home, although exports of eggs, small at the best, have within the past year or so exceeded the imports. Practically no poultry is shipped abroad. Exports of eggs have always been unimportant, such importing countries as the United Kingdom buying chiefly on the continent of Europe, taking some from Canada, but practically none from the United States. We ship considerable numbers to British Columbia and a few to Mexico, the West Indies, etc. The import

Many medicines, few cures.

movement is little less than remarkable. Up to the imposition, in 1890, of a tariff of five cents per dozen, the foreign egg imports, chiefly from Canada, were enormous, approximating 16 million dozen annually. The five cent duty cut imports rapidly, and they were less than two million dozen in 1894, increasing considerably the next year under a lower rate of three cents per dozen, but proving unimportant recently. The 1897 tariff resulted in a restoration of the old rate of five cents.

FOREIGN EGG TRADE, YEAR ENDED JUNE 30.

	Exports.		Imports.		
	Dozens.	Ave'ge value.	Dozens.	Ave'ge value.	Duty.
1897	1,300,183	13.9 cts.	579,681	8.2 cts.	3 cts.
1896	328,485	14.6	947,132	9.3	3
1895	151,007	16.7	2,705,502	11.7	3
1894	163,061	16.1	1,791,430	11.1	5
1893	143,489	23.1	3,318,011	11.8	5
1892	183,063	17.4	4,188,492	12.4	5
1891	363,116	17.6	8,233,043	10.8	5
1890	380,884	15.4	15,062,796	13.7	free
1889	548,750	13.8	15,918,809	15.2	"
1888	419,701	16.0	15,642,861	14.8	"
1887	372,772	16.3	13,936,054	14.1	"
1886	252,202	18.2	16,092,583	13.5	"
1885	240,768	21.5	16,098,450	15.4	"
1884	295,484	22.0	16,487,204	16.2	"
1883	360,023	20.8	15,279,065	17.4	"

EGG MOVEMENT AND MARKET: RECEIPTS AND PRICES AT LEADING POINTS.

	New York.				Chicago.				Boston.		
	Receipts. Mill'n doz.	Prices (in cents)			Receipts. Mill'n doz.	Prices (in cents)			Prices (in cents)		
		Apr.1	Sept.1	Dec.1		Apr.1	Sept.1	Dec.1	Apr.1	Sept.1	Dec.1
1897	83.1	11	19	25	* 44.7	9½	13½	19	14	23	32
1896	77.8	12½	18	27	69.0	10½	11½	22	16	20	33
1895	68.5	14½	17	27	64.6	12	13	20	15	23	28
1894	69.7	12	19	27	63.2	10	15	21	13	22	30
1893	63.4	16	18	28	51.9	14½	14	21	18	22	30
1892	60.7	13½	22	32	64.6	13	17½	24	15	26	35
1891	56.0	20	19½	29½	41.8	17½	16½	26	22	23	35
1890	51.5	17	24	32	44.3	14	16½	25	18	24	35
1889		14½	16½	29	30.6	10½	14½	24	15	22	32
1888		22	20½	26	18.7	14	16	22	21	21	30
1887		13½	17½	26	13.5				16	21	30
1886		13	17	26	12.9				14½	18	29
1885		15½	16	28	11.4				17	18	28
1884	25.6	23	19	29					24	20	29
1883	21.0	20	23½	31½					21	24	32

* The year 1897 incomplete; express receipts missing. Earlier years include both freight and express receipts.

TO MAKE SANDPAPER—Take a quantity of broken window glass (that which has rather a green appearance on the edge is best), pound it in an iron mortar; then have two or three sieves, of different degrees of fineness, ready for use when wanted. Take any good, tough paper (fine cartridge is the best), level the knobs and lumps on both sides with pumice stone, tack it at each corner on a board, and with good clear glue, diluted with about one-third more water than is used generally for woodwork, go quickly over the paper, taking care to spread it evenly with your brush; then, having your sieve ready, sift the pounded glass over it lightly, yet so as to cover it in every part; let it remain till the glue is set, take it from the board, shake off the superfluous glass into the sieve, and hang it in the shade to dry. In two or three days it will be fit for use. The paper will be much better than any you can buy, sand being frequently mixed with the glass to deceive the purchaser.

The Live Stock Industry.

CATTLE.

In point of value, the cattle of the world represent more than double the wealth invested in all other classes of domestic animals combined. In point of numbers, they stand second to sheep only. The cattle supply of the world has increased materially in recent years, for a period coincident with the development of the range industry in this country and the progress of agricultural exploitation on the great plains of South America and Australasia, the increase being much more rapid than the increase in the world's population. This sudden development has apparently reached its limit, and the expansion of the world's herds is now slower than the world's increase in population, so that the old relation between population and cattle supply is being gradually re-established.

In but few countries of the world is there any effort made to secure an actual enumeration of cattle, and usually the countries doing least in this direction are those most prominent as cattle owners. It is a difficult matter to secure even a reliable estimate for the different countries which in point of time shall be identical. The following statement, however, gives an estimate of the numbers in the principal countries as near 1895 as possible:

ESTIMATE OF WORLD'S CATTLE CENSUS.

	Number.		Number.
North America.		Asia:	
United States	48,221,000	India	65,721,000
Canada	4,292,000	Russia	6,839,000
Other	3,899,000	Japan	1,105,000
		Other	3,626,000
Total	56,412,000	Total	77,291,000
South America:		Africa:	
Argentina	22,869,000	Algeria	1,194,000
Brazil	17,000,000	Cape Colony	1,932,000
Venezuela	8,476,000	Natal	738,000
Uruguay	5,497,000	Egypt	462,000
Other	1,833,000	Other	1,588,000
Total	55,675,000	Total	5,914,000
Europe:		Australasia:	
Germany	17,556,000	Queensland	7,013,000
Austria-Hungary	15,086,000	New South Wales	2,465,000
France	12,879,000	Victoria	1,834,000
Russia	32,155,000	Other	2,013,000
United Kingdom	10,753,000	Total	13,325,000
Other	21,809,000		
Total	110,238,000	Oceanica	132,000
		Grand total	318,987,000

This total does not entirely represent the cattle of the world, because for a number of important countries, such as Mexico, Chile, China and others of less prominence, there are no data.

When bread is wanting, all's to be sold.

THE UNITED STATES HAS MORE CATTLE

Than any other with the single exception of British India. According to the census of 1890, the number was: On farms, 51,363,572; on ranges, 5,851,640; on Indian reservations, 433,580; total, 57,648,792. This total, however, does not actually include the whole, from the fact that cattle, especially milch cows kept in towns and villages and not actually on farms, are not reported. The annual estimates of the crop-reporting bureau of *American Agriculturist* and *Orange Judd Farmer* of the number of cattle on farms on January 1 of recent years have been as follows:

AMERICAN AGRICULTURIST'S ESTIMATE OF CATTLE IN THE UNITED STATES.

	Milch Cows.	Other Cattle.	Total.		Milch Cows.	Other Cattle.	Total.
1897	18,113,000	32,647,000	50,760,000	1895	17,451,000	32,398,000	49,849,000
1896	17,787,000	32,602,000	50,389,000	1894	15,800,000	33,955,000	49,755,000

Since 1890, according to the U S Department of Agriculture, the average value per head of cattle, the total value of cattle on farms, and the number per 100 of population January 1, each year, have been as follows:

THE DEPARTMENT'S CATTLE VALUATION.

Value per head.		No. per 100 pop.		Total Value.	Value per head.		No. per 100 pop.		Total Value.		
Cows.	Other Cattle.	Cows.	Cattle.		Cows.	Other Cattle.	Cows.	Cattle.			
1897	\$23.16	\$16.65	23	44	\$877,169,414	1893	21.75	15.24	25	54	905,181,989
1896	22.55	15.86	23	46	872,883,961	1892	21.40	15.16	25	58	922,127,287
1895	21.97	14.06	24	50	845,600,858	1891	21.62	14.76	25	58	890,525,808
1894	21.77	14.66	24	54	895,788,408	1890	22.14	15.21	26	59	913,777,270

COMMERCIAL MOVEMENT OF CATTLE.

The business of slaughtering cattle is concentrated more and more each year in a few cities. Formerly every town, almost every neighborhood, had small slaughterhouses which supplied local demands. This system has passed away and almost the whole of the enormous business is transacted at a few killing centers. The development of transportation facilities, refrigerator cars, and the economies which can be practiced where a large business is carried on, account for this change. The great slaughter centers now are Chicago, Kansas City and Omaha, though the business is increasing at other western points, such as St Louis, St Joseph, Sioux City, St Paul, etc.

Taking the three principal centers, the following statement showing the slaughter yearly from 1871 to 1875, and 1893 to 1896, will illustrate the remarkable concentration of the business in recent years. Such eastern cities as New York, Boston, Philadelphia and Baltimore also slaughter considerable numbers in the aggregate. Good native cattle will dress 54 to 56 per cent of their live weight in beef, balance being hide, fat, offal, etc; 56 per cent is considered good dressing. Sheep will dress from 48 to 54 per cent, 50 per cent being a fair average.

CATTLE SLAUGHTERED AT PRINCIPAL WESTERN POINTS.

	Chicago.	Kansas City.	Omaha.		Chicago.	Kansas City.	Omaha.
1896	1,732,150	894,537	335,094	1874	221,037	40,550	None.
1895	1,803,466	893,419	314,312	1873	187,247	45,421	None.
1894	2,023,625	922,682	517,544	1872	174,050	30,332	None.
1893	2,233,223	899,671	542,866	1871	141,123	20,313	None.
1875	224,309	47,949	None.				

OUR FOREIGN TRADE IN LIVE CATTLE.

Imports.				Exports.				Imports.				Exports.			
	No.	Val.		No.	Val.			No.	Val.			No.	Val.		
1897,	328,977	2,589,857		392,200	36,357,451			1894	1,592	18,704		359,278	33,461,922		
1896	217,826	1,509,856		372,461	34,560,672			1893	3,293	45,682		287,094	26,032,428		
1895,	149,781	765,853		331,722	30,603,796			1892	2,168	\$47,466		394,607	\$35,099,095		

The striking feature of this showing is the enormous increase in imports beginning in 1895. It followed the lowering of tariff duties, and the animals brought in were almost entirely from Mexico. Our export trade in beef and beef products in the form of provisions has been as follows in millions of pounds, the total value of such exports being also given:

EXPORTS OF BEEF AND BEEF PRODUCTS.

	Beef, cann'd	Beef, fresh.	Beef, other cured.	Tallow	Oleo-margarine.	Total Value.		Beef, cann'd	Beef, fresh.	Beef, other cured.	Tallow	Oleo-margarine.	Total Value.
1897	54	290	68	75	118	\$40,905,389	1894	56	194	64	55	127	\$40,687,708
1896	64	225	71	53	109	39,644,482	1893	79	206	59	62	117	43,002,657
1895	64	191	63	26	88	35,578,071	1892	87	221	71	90	93	43,643,645

RANGE OF CATTLE PRICES AT CHICAGO.

	Native steers, 1,200 to 1,800 lbs.	Dry Butcher cows and heifers.	Stockers and Feeders.	West Range cattle.		Native steers, 1,200 to 1,800 lbs.	Dry Butcher cows and heifers.	Stockers and Feeders.	West Range cattle.
1897,	3.25@6.50	1.50@4.50	2.25@4.50	2.25@4.60	1893,	4.00@6.75	1.25@5.00	2.00@4.90	1.75@6.00
1896,	3.40@6.50	1.25@4.50	1.90@4.10	2.10@5.50	1892,	3.75@7.00	1.00@4.00	1.50@4.10	1.50@5.25
1895,	3.60@6.60	1.50@5.75	1.75@5.15	1.90@5.75	1891,	4.00@7.15	1.25@4.60	1.75@4.75	2.00@5.60
1894,	3@6.60	1@4.40	1.75@4.15	1.50@5.00					

Receipts of Cattle at Leading Points by Years.

[Stated in thousands.]

THE FOUR LEADING WESTERN POINTS.

	1897	1896	1895	1894	1893	1892	1891	1890	1889	1888	1887
Chicago,	2,555	2,600	2,589	2,974	3,133	3,572	3,250	3,484	3,023	2,611	2,382
Kansas City,	1,818	1,715	1,613	1,689	1,661	1,479	1,271	1,472	1,220	1,056	669
Omaha,	825	571	602	829	853	738	593	607	467	340	236
St. Louis,	803	792	734	664	756	653	630	511	396	454	388
Total,	6,001	5,678	5,538	6,156	6,403	6,442	5,744	6,074	5,106	4,461	3,675

THE MIDDLE WEST.

	1897	1896	1895	1894	1893	1892	1891	1890	1889	1888	1887
Cincinnati,*	169	180	177	185	171	167	175	161	...	...	...
Indianapolis,	148	135	106	91	86	102	105	120	104	87	94
Cleveland,	25	20	16	13	12	...	...	...	...	...	...
Detroit,	51	55	46	38	47	46	47	33	30	20	23
Total,	393	390	345	327	316	315	327	314	134	107	122

THE EASTERN MARKETS.

	1897	1896	1895	1894	1893	1892	1891	1890	1889	1888	1887
New York,	479	576	570	576	518	629	664	685	639	516	489
Boston,	229	229	163	182	151	189	161	163	167	124	100
Buffalo,	708	945	796	928	923	1,085	1,079	1,229	1,040	846	735
Pittsburg,	263	248	251	340	279	314	313	395	292	266	200
Philadelphia,	113	121	132	152	155	172	152	149	135	125	112
Total,	1,792	2,119	1,917	2,178	2,026	2,389	2,369	2,626	2,273	1,877	1,636

* For year ended March 31.

ADDITIONAL GROWING TRADE CENTERS.

	1897	1896	1895	1894	1893	1892	1891	1890	1889	1888	1887
St. Paul,	179	92	89	75	110	81	137	93	65	32	..
Sioux City,	306	142	110	119	131	136	151	167	105	55	..
Cedar Rapids, Ia.	11	10	12	14	13	...	...	...	...	...	...
St. Joseph, Mo.,	51	39	49	52	39	31	18	23	30	28	..
Ft. Worth, Tex.,	169	66	50	...	...	...	...	...	...	...	...
New Orleans,	123	132	156	164	176	174	166	158	...	...	...
Denver,	251	202	186	148	155	143	141	114	177	106	38
Total,	1090	683	652	572	624	565	613	560	377	221	...

CANADA.

	1897	1896	1895	1894	1893	1892	1891	1890	1889	1888	1887
Montreal,	221	170	162	144	142	152	165	169	140	116	...
Toronto,	144	105	99	93	87	103	101	103	94	75	70
Total,	365	275	261	237	229	255	266	272	234	191	70

Hides.

The only cattle product which we import to any marked extent is hides, the take-off from the domestic kill not being sufficient to supply requirements for leather manufacture. In recent years imports and exports of hides have been as follows:

FOREIGN TRADE IN HIDES AND LEATHER.

In millions of dollars

Year ended	Exports.				Year ended	Exports.			
June 30.	Impo'ts.	Domes.	For.	L'thr.	June 30.	Impo'ts.	Domes.	For.	L'thr.
1897	16.5	2.4	1.1	19.2	1890	12.7	1.8	0.1	12.4
1896	20.5	3.9	0.9	20.2	1889	17.5	0.9	0.1	10.7
1895	15.0	2.3	0.5	15.6	1888	17.6	0.7	—	9.6
1894	8.2	4.0	0.1	14.3	1887	18.4	0.8	—	10.4
1893	15.5	1.5	0.1	11.9	1886	21.0	0.9	—	8.7
1892	15.3	1.2	0.1	12.1	1885	16.4	1.8	—	9.7
1891	16.5	1.3	0.1	13.3					

FACTS REGARDING HIDES.

The most notable feature of the hide trade for many years past was the taking of foreign skins off the free list last year and placing an import duty on them. This amounts to 15 per cent ad valorem; but it is provided upon all leather exported, made from imported hides, there shall be allowed a drawback equal to the amount of duty paid on such hides. This clause of the law is to afford protection to our very important leather interests. No figures are available showing the total hide taken off in this country each year. The figures of slaughter of cattle at leading killing centers, elsewhere presented, will represent take-off at those points named.

The weight of the green hide in percentage of the total weight of the live animal varies according to the condition of the animal. From records of one of the largest slaughtering firms at Chicago, it is estimated that the average will vary from 5 to 6 per cent in the case of fat corn-fed native stock, up to 7 to 9 per cent on rough grass-fed Texas steers. This is on the green weight of the hide, and not the green cured weight at which hides are sold. The shrinkage of hides from green weight to green cured weight at which they are sold is about 15 per cent. This shrinkage varies with the season at which hides are taken off, some long-haired hides taken from cattle killed during the winter will shrink as little as 9 and 10 per cent; while short-haired stock from summer kill will occasionally shrink 18 to 20 per cent.

Hides taken off by packers at the great slaughter centers will run about

Pay what you owe and you'll know what's your own.

as follows, for average cured weight: Native steers, 65 lbs; native cows, 55 lbs; Texas steers, 60 lbs; Texas cows, 50 lbs.

The average proportion of the different classes of hides that go to make up the take-off at packing centers is about as follows: Native steers, 30 per cent; native cows, 15 per cent; Texas steers, 30 per cent; Colorado steers, 10 per cent; Texas and Colorado cows, 15 per cent.

The prices received by packers for hides during recent years have been as follows, in cents per pound:

SELLING PRICE OF PACKER HIDES.

[In cents per pound].

	Steers.		Colo.	Native Cows.		Steers.		Colo.	Native Cows.
	Native.	Tex.				Native.	Tex.		
1897					1895.				
Jan.	9½	8½	7¾	9	Jan.	7¾	7½	6½	6¼
Apr.	9¼	8¼	7¾	9½	Apr.	8½	8½	7¼	8¼
July	10¼	10	9	10	July	13½	12½	11½	10¾
Oct.	11¼	10½	9¼	10½	Oct.	12	10	8¾	8¾
1896					1894.				
Jan.	8¾	7½	6½	7¾	Jan.	8	8	6¾	5½
Apr.	6¾	6	5½	6¼	Apr.	5½	5¾	4¾	4
July	8¾	8¾	7¾	7½	July	5½	6	4¾	4
Oct.	9	8	7	8¼	Oct.	8	8	6½	5¾

Hogs.

The hog furnishes a larger part of the meat supply of the world than is contributed by any other animal. Reaching maturity quickly, the total number available for slaughter in a single year is equal to more than one-half of the total number at any given date. The distribution of hogs throughout the world is less equitable than in the case of any other farm animal. North America and Europe have more than 95 per cent of the total number in the world; the United States, Germany and Russia have nearly 70 per cent of them, and the United States alone has over 40 per cent of the whole. This distribution is readily accounted for. In the case of other animals, grass is their principal food stuff. In the case of hogs, it is grain. The three countries named are the great grain producers, and of corn, the best hog feed of all, the United States has a monopoly of production.

Exact statistics of numbers are not available for many countries, but the following statement gives approximately the numbers in the different countries of the world, the figures coming from tabulations presented by the United States department of agriculture. Those pertaining to the United States are very much smaller than the numbers credited to other authorities, the 1897 estimate of *American Agriculturist* being 47,500,000. The tabulated statement is as full as can be given, but it includes no data for many countries. As a rule, however, the countries omitted are such that under natural conditions their swine property must be small.

ESTIMATE OF WORLD'S HOG SUPPLY.

[U. S. Department Agriculture].

	Number.		Number.
North America:		Germany	12,174,288
United States	42,842,759	United Kingdom	4,238,870
Other	2,751,160	Russia	11,527,884
Total	45,593,919	Other	9,872,465
South America:		Total	53,627,959
Venezuela	1,929,693	Asia	931,597
Other	396,980	Africa	535,341
Total	2,326,673	Australasia	1,107,807
Europe:		Oceanica	33,151
Austria-Hungary	9,776,080		
France	6,038,372	Grand total	104,156,447

DISTRIBUTION AND VALUE IN UNITED STATES.

The hog product of the United States not only furnishes the larger portion of the meat consumed here, but is met with in every part of the world. Probably no other single article in our foreign trade is so widely distributed. In this country the distribution of hogs and corn is largely the same. The following statement shows the number in the principal states on January 1, 1897, as estimated by the *American Agriculturist*, together with the total number in the country at the same date in preceding year.

DOMESTIC HOG SUPPLY BY SECTIONS.

[American Agriculturist's figures].

	No.	Val.		No.	Val.
Ohio	2,616,000	12,557,000	Nebraska	2,054,000	9,448,000
Indiana	1,926,000	8,860,000	Other	26,144,000	99,481,000
Illinois	3,306,000	14,877,000			
Iowa	4,769,000	25,991,000	Total 1897	47,546,000	196,257,000
Missouri	4,355,000	14,589,000	1896	46,302,000	204,402,000
Kansas	2,376,000	10,454,000	1895	47,061,000	229,568,000
			1894	44,051,000	

It is estimated that the annual slaughter of hogs in this country is about 30 million, of which 20 to 25 million are killed at the packing houses in a comparatively few cities. The annual compilations of the Cincinnati Price Current are drawn upon largely for facts relative to packing of hogs. The greater part of the slaughter not done in the regular packing centers represents farm killing for domestic use. The economies where the business is conducted on a larger scale, and the facilities for the distribution of fresh product through the medium of refrigerator cars, constantly tend to further concentration of killing at large centers. The following statement shows the total number of hogs slaughtered at packing points in recent years, the year ending March 1:

TOTAL HOG PACKING BY YEARS.

	Western Packing.	Eastern Packing.	Live Receipts, N. Y., Phil. & Balto	Total.
1897	16,929,000	2,791,000	2,950,000	22,670,000
1896	15,010,000	2,603,000	2,867,000	20,480,000
1895	16,003,000	3,099,000	2,517,000	21,619,000
1894	11,605,000	2,701,000	2,483,000	16,789,000
1893	12,390,000	3,016,000	2,790,000	18,196,000
1892	14,457,000	2,771,000	3,684,000	20,912,000
1891	17,713,000	2,540,000	3,713,000	23,966,000

THE 1897 HOG PACK AT LEADING POINTS.

	Number.		Number.
Chicago	5,967,595	Milwaukee	786,593
Kansas City	2,393,739	Cincinnati	625,570
Omaha	1,188,879	Cleveland	526,702
St Louis	1,089,533	Ottumwa, Ia.	505,709
Indianapolis	844,335		

The enormous extent of the western packing business will be appreciated from the following statement showing the total amount paid by western packers for hogs alone:

AMOUNT PAID BY WESTERN PACKERS FOR LIVE HOGS.

1897	\$135,456,000	1895	172,679,000
1896	142,238,000	1894	166,090,000

Injure conscience and it will be revenged.

DETAILS OF WESTERN HOG PACKING, SEASON OF 1897.

Hogs packed, number.....	16,928,978	Green meats made, pounds..	2,250,158,000
Av. live weight, pounds.....	24.42	Lard made, pounds.....	662,040,000
Av. live cost, per 100 pounds.....	\$3.30		

SEASON OF WINTER PORK PACKING IN THE WEST.

(Stated in thousands of hogs.)

Nov. 1 to Mar. 1.	Chicago.	Kansas City.	Omaha	St. Louis.	Cincin- nati.	Mil- wau'ee	Indian apolis.	Louis- ville.	Total.
1896-97	2,285	1,025	440	415	240	360	345	120	5,230
1895-96	2,375	869	417	388	250	368	336	129	5,132
1894-95	2,475	885	535	373	266	349	308	137	5,328
1893-94	1,696	585	380	255	190	143	258	104	3,611
1892-93	1,478	617	408	226	204	120	205	112	3,370
1891-92	2,757	863	635	350	289	326	317	101	5,638
1890-91	2,838	937	584	291	301	338	315	113	5,717
1889-90	2,179	682	373	349	272	301	326	106	4,588
1888-89	1,462	712	333	336	300	274	278	153	3,848
1887-88	1,732	780	364	370	310	219	301	191	4,267
1886-87	1,844	769	243	371	331	327	352	199	4,436
1885-86	2,393	656	106	369	333	343	291	122	4,613
1884-85	2,368	607	141	442	385	337	317	165	4,762
1883-84	2,011	427	65	382	365	265	274	142	3,931
1882-83	2,558	445	91	327	425	294	276	126	4,542
1881-82	2,368	346	85	316	385	324	249	131	4,204
1880-81	2,781	340	96	474	522	326	389	231	5,159
1875-76	1,592	75	18	330	563	182	323	223	3,306
1870-71	918	36	—	306	500	241	105	242	2,348
1865-66	507	—	—	117	354	88	36	91	1,193
1860-61	272	—	—	80	434	51	39	199	1,075

As the western packing represents but little more than one-half the annual slaughter of hogs in this country, it will be seen that the trade in hog products is one of our largest. It has been estimated that our per capita consumption of swine flesh is about 55 pounds per annum, and of lard about 8 pounds, a rate of meat consumption not approached in any other country. Good prime hogs cut into pork, hams, shoulders and lard will dress out 73 to 75 per cent. If cut into ribs instead of pork, about 70 to 72 per cent. Hogs that are not prime, the percentage will vary anywhere from 65 to 70 per cent.

Our four leading foreign customers for pork products bought in 1897, are as follows: United Kingdom, \$51,713,135; Germany, \$10,259,139; Cuba, \$2,213,775; France, \$1,203,487. Our export trade in pork products is large, in a single year exceeding 100 million dollars in value. The following statement gives exports in millions of pounds and total value for five years past:

FIVE YEARS' EXPORTS OF HOG PRODUCT.

	Bac. & Hams.	Pork.	Lard.	To't val.		Bac. & Hams.	Pork.	Lard.	To't val.
1897	665	68	568	\$82,675,683	1894	504	64	48	93,341,487
1896	554	69	510	83,675,922	1893	473	52	366	84,475,505
1895	558	58	475	89,696,768					

THE AVERAGE COST

Per 100 pounds of hogs packed in the west in recent years has been for the year ending March 1:

	Summer.	Winter.	Year.		Summer.	Winter.	Year.
1896-7	\$3.30	\$3.30	\$3.30	1893-4	6.33	5.26	5.87
1895-6	4.41	3.68	4.07	1892-3	5.03	6.54	5.60
1894-5	4.93	4.78	4.67				

Better without a supper than a debt for a breakfast.

HOG PRICES AT CHICAGO PER 100 POUNDS.

Year.	Heavy packing, 260 to 450 lbs.	Mixed packing, 200 to 250 lbs.	Light bacon, 150 to 200 lbs.	Year.	Heavy packing, 260 to 450 lbs.	Mixed packing, 200 to 250 lbs.	Light bacon, 150 to 200 lbs.
1897	\$2.50@4.50	\$2.90@4.60	\$3.00@4.65	1893	3.80@8.75	4.25@8.65	4.40@8.50
1896	2.40@4.45	2.75@4.45	2.80@4.45	1892	3.70@7.00	3.65@6.70	3.60@6.85
1895	3.25@5.45	3.25@5.55	3.25@5.70	1891	3.25@5.70	3.25@5.75	3.15@5.95
1894	3.90@6.75	3.90@6.65	3.50@6.45				

Receipts of Hogs at Leading Points by Years.

THE FOUR LEADING WESTERN POINTS.

	1897	1896	1895	1894	1893	1892	1891	1890	1889	1888	1887
Chicago,	8,364	7,659	7,885	7,483	6,057	7,714	8,601	7,664	5,999	4,922	5,471
Kansas City	3,351	2,606	2,458	2,547	1,948	2,397	2,599	2,865	2,074	2,009	2,423
Omaha,	1,605	1,198	1,188	1,904	1,435	1,706	1,462	1,673	1,207	1,284	1,012
St. Louis,	1,627	1,618	1,085	1,147	777	848	841	925	773	652	772
Total,	14,947	13,081	12,616	13,081	10,217	12,665	13,503	13,127	10,053	8,867	9,678

THE MIDDLE WEST.

	1897	1896	1895	1894	1893	1892	1891	1890	1889	1888	1887
Cincinnati,*	875	823	773	639	592	587	816	690	...	...	...
Indianapolis,	1,253	1,255	1,109	964	879	1,123	1,320	1,447	1,158	896	1,149
Cleveland,	750	500	375	295	270	...	...	...	...	...	...
Detroit,	320	224	189	164	149	134	87	70	114	21	49
Total,	3,198	2,802	2,346	1,062	1,890	1,844	2,223	2,207	....	....	....

THE EASTERN MARKETS.

	1897	1896	1895	1894	1893	1892	1891	1890	1889	1888	1887
New York,	1,578	1,845	1,763	1,656	1,488	1,826	2,177	2,126	1,762	1,550	1,792
Boston,	1,420	1,435	1,400	1,673	1,373	1,636	1,473	1,323	1,152	1,046	1,047
Buffalo,	5,621	4,941	5,256	5,626	6,058	6,112	7,167	6,263	5,776	5,333	5,074
Pittsburg,	1,894	1,340	1,063	1,074	999	1,347	1,428	1,356	1,205	1,161	1,259
Philadelphia,	250	278	259	289	275	337	377	409	332	281	274
Total	10,763	9,839	9,741	10,317	10,193	11,258	12,622	11,477	10,247	9,371	9,446

ADDITIONAL GROWING TRADE CENTERS.

	1897	1896	1895	1894	1893	1892	1891	1890	1889	1888	1887
St. Paul,	225	314	364	327	194	239	263	316	249	273	...
Sioux City,	350	279	341	499	329	413	397	724	593	431	...
Cedar Rapids,	487	358	365	317	293	409	502	520	346	307	847
St Joseph, Mo.	400	193	252	398	240	289	178	202	253	258	...
Ft Worth, Tex.	114	141	60	...	...	...	...	...	...	...	...
New Orleans,	18	28	26	26	30	36	33	29	...	...	...
Denver,	75	57	48	94	62	83	80	107	75	64	54
Total,	1,669	1,370	1,456	1,661	1,148	1,769	1,453	1,898	1,516	1,333	....

CANADA.

	1897	1896	1895	1894	1893	1892	1891	1890	1889	1888	1887
Montreal,	93	89	74	87	70	52	43	38	23	26	...
Toronto,	77	194	154	140	75	74	51	54	57	36	35
Total,	170	283	228	227	145	126	94	92	80	62	35

* For year ended March 31.

Horses.

Russia leads the countries of the world in number of horses owned, having within her borders more than one-third of the whole number of the world, while the United States comes second, with 20 per cent of all. These two countries combined have considerably more horses than all the rest of the world together. In all probability there are about 75,000,000 horses in the world and data are available from census, enumerations and official or reliable estimates, to show where 73,000,000 of them are distributed. Of this grand total, 17 millions are credited to North America (mostly in the United States), five to South America, 38 to Europe, nine to Asia, remainder scat-

Who falls in love with himself will have no rivals.

tered. In addition is the following showing of mules and asses: North America two millions, South America one, Europe three, Asia one and Africa one, scattering one, total nine millions.

GROWTH OF THE INDUSTRY IN UNITED STATES.

The United States census figures afford an intelligent idea of the growth of the horse industry in the past half century. The figures in the subjoined table apply only to horses on farms. In 1890 there were reported, in addition, 289,316 on western ranges, and 7461 on Indian reservations, making the grand total for that year 17,561,776. There are no data showing the number in towns and villages, but the number so owned is large, much larger than is the case with any other class of animals.

HORSES AND MULES ON FARMS.				THE SHRINKAGE IN VALUES OF HORSES.			
	Horses.	Mules, asses.	Tot anim's	Year.	Value.	Year.	Value.
1890	15,266,244	2,295,532	17,561,776	1884	\$74.64	1891	\$67.00
1880	10,357,488	1,812,808	12,170,296	1885	73.70	1892	65.01
1870	7,145,370	1,125,415	8,270,785	1886	71.27	1893	61.22
1860	6,249,174	1,151,148	7,400,322	1887	72.15	1894	47.83
1850	4,336,719	559,331	4,996,050	1888	71.82	1895	36.29
1840 ^a	4,335,669		4,335,669	1889	71.89	1896	33.07
				1890	68.84	1897	31.51

^a Including mules and asses.

DISTRIBUTION ACCORDING TO AMERICAN AGRICULTURIST.

The distribution in the leading agricultural states and the total number and value of horses in the United States on Jan 1 of each year since 1895, according to estimates prepared by the statistical bureau of *American Agriculturist*, are as follows:

NUMBER AND VALUE OF HORSES, BY STATES.

State.	Number.	Value.	State.	Number.	Value.
New York,	637,000	\$31,576,000	Iowa,	1,229,000	\$38,714,000
Pennsylvania,	640,000	26,880,000	Missouri,	1,014,000	27,479,000
Texas,	1,249,000	31,225,000	Kansas,	903,000	22,394,000
Tennessee,	314,000	11,932,000	Nebraska,	676,000	17,644,000
Kentucky,	452,000	16,724,000	California,	456,000	12,038,000
Ohio,	792,000	39,492,000	Other states,	3,819,000	128,428,000
Michigan,	522,000	22,446,000			
Indiana,	696,000	25,404,000	Total, 1897,	15,623,000	525,723,000
Illinois,	1,245,000	43,575,000	" 1896,	15,867,000	550,532,000
Wisconsin,	490,000	21,266,000	" 1895,	16,082,000	678,807,000
Minnesota.	489,000	17,506,000			

The horse industry in this country reached high-water mark, so far as average values were concerned, in 1884, though the shrinkage in numbers did not begin until 1893. The small table above, from records of the United States Department of Agriculture, shows the average value per head of horses Jan 1 of each year since the decline began. Between 1884 and 1897 there was a shrinkage in average value of \$43.13 per head, or 57 per cent. During the same time there was a loss in aggregate value of \$381,085,004.

IMPROVING MARKET CONDITIONS.

Following the depression covering a period of several years, the horse industry is once more happily on the up grade. Within comparatively recent months the demand has increased perceptibly and so with the market value for the better grades. Enormous numbers of undesirable animals were disposed of during the past three years, breeding was neglected to some extent, and the present finds no excess of really good to prime horse flesh. In addition to the steady and extensive demand for horses to make up domestic requirements, there is an increasing and highly encouraging inquiry

on export account, with constant shipments to the United Kingdom, Germany, and other parts of Europe. In five years our exports have increased twelve-fold, but it is not at all probable such a growth can be continued indefinitely. The greater part of the value of imports represents horses brought in for breeding purposes, and the steady shrinkage in such imports shows that during the period of depression through which our horse industry has been passing the effort to improve the quality was very feeble.

FOREIGN TRADE IN HORSES.

Year ended Jun. 30.	Exports.		Imports.		Year ended Jun. 30.	Exports.		Imports.	
	No.	Val.	No.	Val.		No.	Val.	No.	Val.
1897	39,352	\$4,769,265	6,928	\$464,808	1892	3,226	611,188	14,074	2,455,868
1896	25,126	3,530,703	9,991	662,591	1891	3,110	784,908	22,537	3,265,254
1895	19,984	2,209,298	13,098	1,055,191	1890	3,501	680,410	49,116	4,840,485
1894	5,246	1,108,995	6,166	1,319,572	1888	2,263	412,774	62,411	5,405,863
1893	2,967	718,607	15,451	2,388,267	1885	1,947	377,692	40,255	3,292,297

Receipts of Horses at Leading Points, by Years.

[Stated in thousands.]

	1897	1896	1895	1894	1893	1892	1891	1890	1889	1888	1887
Chicago,	112	106	113	97	82	87	94	102	80	55	46
Kansas City,	37	58	53	44	35	33	32	37	34	28	30
Omaha,	..	10	7	8	12	14	9	5	8	5	3
St. Louis,	88	93	28	13	12	15	15	22	26	28	29
Cincinnati, &	2	4	3	4	5	5	7	8	..	..	..
Indianapolis,	30	23	18	8	7	9	10	16	16	20	21
Pittsburg,	42	31	31	29	30	38	35	39	31	28	30
Boston,	29	35	34	..	..	..	..	..	..	..	..
Montreal,	18	16	18	10	5	6	4	4	6	6	..
Sioux City,	b	b	b	1	2	4	3	2	1	1	b
St. Paul,	b	b	b	b	1	2	2	2	3	..	..
St. Worth, Tex.,	2	2	2	..	..	..	..	..	..	..	..
St. Joseph, Mo.,	3	3	2	1	2	2	4	2	3	4	..
Denver,	2	3	3	6	8	12	9	6	7	7	5

a For year ended March 31. b Less than 1000 head.

Sheep.

With the single exception of North America, in every grand division of the world, sheep exceed in point of numbers any other class of domestic animals. There is, however, evidence that in recent years this importance relatively, if not indeed actually, is decreasing. It is difficult to gather statistics for all the countries of the world, but in the following statement is presented official returns of number of sheep at two periods closely approximating 1893 and 1896. The figures are not intended as a showing of the sheep of the world, but are presented to show the relative changes in numbers between the two periods. It will be seen from this statement that the depression of the past few years in sheep has resulted in a sharp decline in numbers throughout the world, the countries named in the noted totals including nearly all the civilized nations. The countries included in each statement are the same, but for 1896 data for some additional countries are available.

COMPARISON OF SHEEP, 1893 AND 1896, IN PRINCIPAL COUNTRIES OF THE WORLD.

	1893.	1896.	Inc. or Dec.		1893.	1896.	Inc. or Dec.
N. America,	51,292,797	42,470,339	8,822,458	Africa,	35,589,208	34,994,957	594,251
S. America,	96,242,137	89,360,010	6,882,127	Australia, ..	124,645,606	121,165,477	3,480,129
Europe,	191,688,593	184,750,947	6,937,556	Total,	534,836,317	511,377,962	23,458,355
Asia,	35,378,066	38,636,232	*3,258,166				*Decrease.

Sell not virtue to buy wealth.

THE SHEEP INDUSTRY IN THE UNITED STATES

Has been subject to great fluctuations. More than any other agricultural branch it is affected by legislation. Until within comparatively recent years sheep have been kept almost entirely for their wool product, and every influence affecting wool prices has been reflected by corresponding changes in the number of sheep kept. With the past few years, however, there has been a remarkable increase in the consumption of mutton, and the tendency now is decidedly in the direction of raising sheep for slaughter with wool as an incidental product.

SHEEP IN THE UNITED STATES BY STATES, JAN. 1, 1897.

[Department of Agriculture.]

Number.	Per H'd.	Val.	Number.	Per H'd.	Val.
Maine.....230,364	\$2.05	\$471,671	Minn.....404,904	\$2.19	\$887,711
N. H.....77,529	2.33	180,332	Iowa.....553,834	3.02	1,672,578
Vt.....157,943	2.02	318,423	Mo.....697,264	1.90	1,326,197
Mass.....42,104	3.38	142,206	Kans.....222,215	1.80	398,965
R. I.....10,715	2.81	30,136	Neb.....188,768	2.47	466,182
Conn.....32,104	3.09	99,051	S. Dak.....336,259	2.17	731,161
N. Y.....809,261	2.68	2,166,797	N. Dak.....356,230	1.95	695,219
N. J.....41,482	3.27	135,597	Mont.....3,122,732	1.61	5,033,220
Penn.....798,751	2.77	2,209,981	Wyoming..1,672,432	1.80	3,005,862
Del.....12,358	3.14	38,779	Colo.....1,411,382	1.76	2,486,290
Md.....124,689	2.66	331,361	N. Mex.....2,683,269	1.06	2,847,753
Va.....392,738	2.14	849,774	Ariz.....828,666	1.57	1,301,172
N. C.....319,170	1.39	443,936	Utah.....1,998,441	1.52	3,036,830
S. C.....72,976	1.56	114,134	Nev.....544,077	1.69	917,314
Ga.....344,680	1.46	503,646	Idaho.....1,376,119	1.71	2,346,283
Fla.....97,706	1.58	154,610	Wash.....741,219	1.86	1,375,851
Ala.....252,133	1.25	316,074	Oreg.....2,604,640	1.33	3,459,222
Miss.....306,156	1.37	420,352	Cal.....2,577,050	1.86	4,800,787
La.....136,311	1.22	166,885	Okla.....23,215	1.42	33,011
Tex.....2,789,383	1.20	2,350,607			
Ark.....170,075	1.28	218,512	Total...36,818,643	1.82	67,020,942
Tenn.....382,335	1.44	549,836	1896.....38,298,783	1.70	65,167,735
W. Va.....458,157	2.18	1,000,065	1895.....42,294,064	1.58	66,685,767
Ky.....738,195	1.90	1,405,229	1894.....45,048,017	1.98	89,186,110
Ohio.....2,368,967	2.48	5,877,171	1893.....47,273,553	2.66	125,909,264
Mich.....1,341,971	2.64	3,536,899	1892.....44,938,365	2.58	116,121,290
Ind.....654,758	2.71	1,771,579	1891.....43,431,136	2.50	108,379,447
Ill.....604,189	2.86	1,725,564	1890.....44,336,072	2.27	100,659,761
Wis.....708,722	2.37	1,079,134			

An examination of records of receipts at slaughter points will show that the decline indicated in the table has not all resulted from indifference in matter of breeding, but that large numbers from old flocks have been sent to the butchers' block. The receipts and shipments at the three great western slaughter points since 1889 have been as follows:

SHEEP MOVEMENT IN THE WEST.

	Chicago.		Kansas City.		Omaha.	
	Receipts.	Shipments.	Receipts.	Shipments.	Receipts.	Shipments.
1896	3,591,000	561,000	993,000	304,000	333,000	131,000
1895	3,407,000	475,000	865,000	287,000	209,000	114,000
1894	3,400,000	333,000	590,000	196,000	252,000	116,000
1893	3,032,000	443,000	570,000	197,000	243,000	92,000
1892	2,145,000	483,000	438,000	219,000	185,000	83,000
1891	2,154,000	688,000	387,000	178,000	171,000	89,000
1890	2,183,000	930,000	536,000	336,000	156,000	94,000
1889	1,832,000	711,000	371,000	175,000	159,000	103,000

Who buys luxuries may need to sell necessities.

Dividing this period into two terms of four years each, it will be found that the receipts at the three points during the last four years exceeded the preceding four years by 60 per cent, while in cattle there was a decrease in the same period of 16 per cent. This is strong testimony both as to the increasing use of mutton as food and of the slaughter of flocks in recent years. There are four eastern cities where sheep are also slaughtered in large numbers. The receipts at these points since 1891 are:

RECEIPTS AT EASTERN SLAUGHTER POINTS.

	N. Y.	Bos.	Phila.	Balt.		N. Y.	Bos.	Phila.	Balt.
1896.....	2,046,000	666,000	469,000	394,000	1893.....	2,055,000	530,000	459,000	248,000
1895.....	2,375,000	784,000	577,000	483,000	1892.....	1,996,000	572,000	507,000	292,000
1894.....	2,437,000	688,000	552,000	362,000	1891.....	1,882,000	586,000	486,000	422,000

QUOTATIONS ON SHEEP AND LAMBS AT CHICAGO.

	Native Sheep.	Native Lambs.	West'n Sheep.	Tex. & Mex Sh'p		Native Sheep.	Native Lambs.	West'n Sheep.	Tex. & Mex Sh'p
'97,	1.50@5.35	3.00@6.20	2.00@4.60	2.00@4.25	'93,	.75@6.25	2.25@7.55	1.25@6.45	1.25@5.60
'96,	1.75@4.60	1.85@6.60	1.15@4.30	1.25@3.75	'92,	2.25@6.90	3.00@8.25	3.00@6.75	2.25@6.35
'95,	1.75@5.50	1.75@6.35	1.50@5.35	1.00@5.15	'91,	2.00@7.00	3.25@8.50	3.25@6.85	2.05@5.75
'94,	1.50@5.40	1.00@6.00	1.10@5.40	1.00@4.50					

EXPORTS OF SHEEP AND MUTTON, AND IMPORTS OF SHEEP.

	Exports.				Imports.	
	Sheep.		Mutton.		Sheep.	
	Number.	Value.	Pounds.	Value.	Number.	Value.
1890	67,521	\$243,077	256,711	\$21,793	393,794	\$1,268,209
1891	69,947	261,109	199,395	18,959	345,765	1,219,206
1892	46,960	161,105	101,463	9,022	380,814	1,440,530
1893	37,260	126,394	108,214	9,175	459,484	1,682,977
1894	132,370	832,763	2,197,900	174,404	242,568	788,181
1895	405,748	2,630,686	591,499	47,832	291,461	682,618
1896	491,565	3,076,384	422,950	31,793	322,692	853,530
1897	244,120	1,531,645	361,955	28,341	405,633	1,019,668

Receipts of Sheep at Leading Points by Years.

THE FOUR LEADING WESTERN MARKETS.

	1897	1896	1895	1894	1893	1892	1891	1890	1889	1888	1887
Chicago,	3,607	3,592	3,407	3,400	3,031	2,245	2,154	2,183	1,832	1,515	1,361
Kansas City,	1,134	993	865	590	570	438	387	536	371	351	210
Omaha,	634	333	209	252	243	185	171	156	159	159	76
St. Louis,	609	591	455	292	350	299	348	282	279	369	316
Total,	5,984	5,509	4,936	4,534	4,194	3,067	3,060	3,157	2,641	2,394	1,963

THE MIDDLE WEST.

	1897	1896	1895	1894	1893	1892	1891	1890	1889	1888	1887
Cincinnati,*	469	597	652	589	308	316	318	303	...	...	...
Indianapolis,	98	121	122	109	83	63	65	77	88	84	109
Cleveland,	75	90	90	75	62	...	...	...	...	...	...
Detroit,	91	126	186	148	87	55	59	32	35	36	85
Total,	733	934	1,050	921	540	434	442	412	..	..	..

THE EASTERN MARKETS.

	1897	1896	1895	1894	1893	1892	1891	1890	1889	1888	1887
New York,	1,631	2,046	2,375	2,437	2,055	1,996	1,882	1,799	1,806	1,883	2,025
Boston,	559	666	784	688	530	572	586	584	540	538	591
Pittsburg,	1,011	815	843	708	715	631	655	691	757	839	928
Buffalo,	1,878	2,664	3,223	2,877	2,578	2,583	2,551	2,433	2,435	2,242	2,110
Philadelphia,	376	469	577	552	459	507	486	414	427	459	462
Total,	5,455	6,460	7,802	7,262	6,337	6,253	6,111	5,921	5,965	5,961	6,116

* For year ended March 31.

Eat to please yourself, dress to please others.

ADDITIONAL GROWING TRADE CENTERS.

	1897	1896	1895	1894	1893	1892	1891	1890	1889	1888	1887
St Paul,	300	200	175	95	153	97	89	190	121	61	..
Sioux City,	10	10	14	25	27	43	22	27	9	5	..
Cedar Rapids, Ia.	2	2	2	3	4	..	..	..	..	..	..
St Joseph, Mo.,	14	24	22	16	26	17	16	24	5	4	..
Ft. Worth, Tex,	27	4	16	..	..	..	..	..	..	..	..
New Orleans,	13	22	23	26	29	28	24	28	..	..	..
Denver,	306	181	156	139	130	134	166	178	158	109	37
Total,	672	443	406	304	369	319	317	447	293	..	..

CANADA.

Montreal,	160	137	304	218	58	59	68	84	79	83	..
Toronto,	181	96	126	120	50	49	50	54	92	63	59
Total,	341	233	430	338	108	108	118	138	171	146	59

Wool.

Movement and Markets.

The production of wool in the United States in recent years has been estimated at somewhere around 300,000,000 pounds, with a tendency toward a smaller total each year since 1893. For 1897, the estimate was 259,000,000 pounds, or the smallest since 1881. The following statement gives the clip of 1897 by states, with its equivalent in scoured wool, as estimated by the National association of wool manufacturers:

WOOL CLIP OF UNITED STATES, BY STATES.

	Clip of 1897. Pounds.	Scoured equiva't, lbs		Clip of 1897. Pounds.	Scoured equiva't, lbs
Me.....	1,350,396	783,230	Mo.....	3,824,843	1,912,422
N. H.....	484,283	217,927	Kans.....	1,736,832	573,155
Vt.....	1,071,364	460,687	Neb.....	1,469,368	484,891
Mass.....	223,696	129,744	Dak.....	1,842,030	736,812
R. I.....	57,634	33,423	N. Dak.....	1,910,820	764,323
Ct.....	167,745	97,292	Mont.....	20,110,391	7,440,845
N. Y.....	4,685,622	2,342,811	Col.....	9,088,592	2,908,349
N. J.....	202,430	107,288	N. Mex.....	11,314,004	5,317,582
Penn.....	4,239,372	1,992,505	Ariz.....	6,229,497	1,868,849
Del.....	58,455	31,566	Utah.....	11,163,294	3,907,153
Md.....	595,390	315,557	Nev.....	3,901,035	1,248,331
Va.....	1,853,725	1,075,161	Ida.....	9,189,719	3,124,504
N. C.....	1,503,290	856,875	Wash.....	4,877,222	1,463,167
S. C.....	337,515	189,008	Oreg.....	18,440,850	5,716,663
Ga.....	1,247,740	748,644	Cal.....	17,245,620	5,863,511
Fla.....	362,684	210,356	Okla.....	156,982	53,374
Ala.....	990,127	574,274	Total.....	219,153,251	87,365,987
Miss.....	1,145,020	629,763	Pulled wool....	40,000,000	24,000,000
La.....	561,874	280,937	Grand tot. '97	259,153,251	111,365,987
Tex.....	17,315,097	5,540,831	Total 1896.....	272,475,000	115,285,000
Ark.....	952,080	428,436	" 1895.....	294,297,000	125,719,000
Tenn.....	1,625,882	926,752	" 1894.....	325,211,000	140,292,000
W. Va.....	2,398,908	1,247,432	" 1893.....	348,538,000	151,104,000
Ky.....	3,783,989	1,346,073	" 1892.....	333,018,000	145,300,000
Ohio.....	11,790,350	5,895,175	" 1891.....	307,402,000	139,327,000
Mich.....	8,400,067	3,948,031	" 1890.....	309,475,000	139,628,000
Ind.....	3,716,406	2,044,023	" 1889.....	295,779,000	134,795,000
Ill.....	3,613,806	1,806,900	" 1888.....	301,876,000	136,592,000
Wis.....	4,305,488	2,152,744	a " 1880.....	155,682,000	
Minn.....	2,363,832	1,063,724	a " 1870.....	100,102,000	
Iowa.....	3,362,326	1,344,930	a " 1860.....	60,264,000	
			a " 1850.....	52,517,000	
			a " 1840.....	35,802,000	

a United States Census.

Desire many things and many things will seem but few.

Definite statistics of wool production are not available for many of the countries of largest production. On this account, any statement of the world's production is largely conjectural. A recent compilation made by the U S Department of Agriculture is as follows:

THE WORLD'S PRODUCTION OF WOOL.

Europe.		Other Countries.	
	Pounds.		Pounds.
Russia.....	261,509,000	Australia.....	505,712,000
United Kingdom.....	147,474,000	United States.....	293,000,000
France.....	107,222,000	Argentine Republic.....	340,908,000
Spain.....	66,138,000	Uruguay.....	61,666,000
Germany.....	55,000,000	Cape Colony.....	70,335,000
Hungary.....	43,144,000	British India.....	24,717,000
Italy.....	21,214,000	Natal.....	20,887,000
Austria.....	9,044,000	Asiatic Turkey.....	17,504,000
Portugal.....	11,486,000	British No. America.....	10,000,000
Belgium.....	1,102,000	Others.....	88,184,000
Sweden.....	3,968,000	Total, non-European.....	1,432,918,000
Others.....	77,690,000		
Total, Europe.....	805,093,000	Grand Total, World.....	2,238,011,000

The four great wool manufacturing countries are France, United Kingdom, United States and Germany. In 1890 the amount used in each country was as follows:

WOOL CONSUMPTION IN LEADING COUNTRIES.

	Net Imports, pounds.	Domestic Production, pounds.	Supply, pounds.
France.....	298,395,516	124,803,000	423,198,516
United Kingdom.....	273,021,515	147,475,000	420,496,515
United States.....	126,373,603	285,000,000	411,373,603
Germany.....	263,670,160	54,894,000	318,564,160

From this it appears that the United States leads in proportion of domestic wool used with 69 per cent; followed by United Kingdom with 35, France with 29 and Germany with 17 per cent.

Since 1890 the wool used in our domestic manufactures has originated as follows:

DOMESTIC SUPPLY, DISTRIBUTION AND CONSUMPTION.

[In thousands of pounds, last three figures, 000's, omitted.]

	Production.	Imports.	Total.	Exports.	Consumption	Per cent. of Foreign.
1896	272,475	350,852	623,327	8,701	614,626	56.5
1895	294,297	230,911	525,208	12,972	512,236	43.9
1894	325,211	206,082	531,293	6,622	524,671	38.8
1893	348,538	55,153	403,691	6,498	497,193	12.4
1892	333,018	172,434	505,452	4,310	501,142	33.5
1891	307,102	148,671	455,773	3,210	452,563	32.2
1890	309,475	129,304	438,779	2,930	435,748	29.0

Prices governing different grades of standard domestic fleece wool (Ohio washed clothing) in the seaboard markets at the beginning of each quarter were as follows, in cents per pound. Washed Ohio fleece wool is less subject to variation than any other description, and thus is more a basis of value than any other class.

Creditors have good memories.

WASHED OHIO FLEECE WOOL, IN CENTS PER POUND.

	January.			April.			July.			October.		
	Fine.	Medi um.	C'rse	Fine.	Medi um.	C'rse	Fine.	Medi um.	C'rse	Fine.	Medi um.	C'rse
1897.....	19	21	21	22	23	22	22	24	21	27	29	28
1896.....	19	21½	19	19	21	18	17	18	17	18	19	18
1895.....	17½	20	19	16½	20	18	18	21	19	18	21	19
1894.....	23	24	21	21	23	20	20	21	18	19	21	19
1893.....	29	33	29	30	32	31	24	26	25	23	24	21
1892.....	30	35	31	29	34	31	28	34	30	29	33	29
1891.....	33	37	31	32	37	31	31	35	29	31	35	30
1890.....	33	37	29	32	36	29	33	37	29	33	37	31
1885.....	34	33	29	32	32	28	32	31	28	33	35	31
1880.....	50	55	48	55	60	52	46	48	42	46	48	42
1875.....	55	56	47	54	52	46	52	49	46	48	50	42
1870.....	48	46	44	48	47	46	46	45	43	48	48	44
1865.....	102	100	96	80	80	75	75	73	65	75	75	65
1860.....	60	50	42	52	45	40	55	50	40	50	45	40
1855.....	40	35	32	43	35	32	50	40	33	52	41	36
1853.....	58	56	50	62	56	50	60	53	48	55	50	48

In addition to heavy imports of raw wool, the United States imports largely of woollen manufactures. The value of such imports since 1890 has been:

AVERAGE ANNUAL IMPORTS OF WOOLEN GOODS.

1897	\$49,163,000	1892	\$35,566,000
1896	53,494,000	1891	41,060,000
1895	36,543,000	1890	56,582,000
1894	19,439,000	8 yrs.....	329,896,000
1893	38,049,000	Av.	41,237,000

The exports of wool from the principal wool-producing countries since 1890 have been as follows:

	Russia.	India.	Australasia.	Argentine.	Uruguay.
1890	66,195,129	38,272,528	603,681,372	261,036,995	40,367,859
1891	73,381,616	34,133,059	777,815,763	305,570,430	57,121,294
1892	51,822,155	35,655,479	793,076,919	340,908,398	61,666,699
1893	28,854,287	37,116,699	784,428,100	271,672,858	63,467,881
1894	28,059,801	36,821,308	816,887,046	356,940,172	86,326,259
1895		44,770,448	779,582,478	443,902,824	111,916,601
1896		47,043,010			

IMPORTS, ANIMALS AND MEAT PRODUCTS.

[Stated in thousands].

Year ended June 30	Cattle, No.	Horse, No.	Sheep, No.	Eggs, dozen.	Hides, skins, dollars	Butter, lbs.	Cheese lbs.	Year ended June 30	Cattle, No.	Horse, No.	Sheep, No.	Eggs, dozen.	Hides, skins, dollars	Butter, lbs.	Cheese lbs.
1897,	329	7	406	580	27,863	38	12,319	1891,	12	22	346	8,233	27,931	381	8,864
1896,	218	10	323	947	30,520	52	10,728	1890,	31	49	394	15,063	21,882	76	9,264
1895,	150	13	291	2,706	27,033	72	10,276	1889,	62	59	405	15,919	25,128	179	8,207
1894,	2	6	243	1,791	16,796	144	8,743	1888,	64	62	473	15,643	23,939	143	8,750
1893,	3	15	459	3,318	28,348	73	10,196	1887,	87	56	480	13,936	24,219	236	6,592
1892,	2	14	381	4,188	26,850	114	8,305								

TO KEEP THE HAIR FROM FALLING OUT—Wash the head every week in salt water, and rub the skin of the head with a dry, coarse towel. Then apply a dressing composed of bay rum and sweet oil, with which a drop of tincture of cantharides has been mingled. This will stimulate the skin, and keep the hair from falling out and turning gray. The dressing for the hair may be scented with cinnamon oil or some such warming essence.

He that lives well is not ignorant.

THE GRAIN TRADE.

How it Is Conducted at Home and Abroad.

A very large proportion of the staple cereals are consumed within the countries where grown, especially coarse grains, and go to make up farm requirements or are converted into beef, pork, mutton, dairy product, and poultry. Yet such enormous quantities of grain are placed on the markets of the world that it is important producers should understand some of the methods in vogue in handling these farm crops. The grain trade is divided primarily into two divisions, the cash and the speculative branches. These are in many instances so closely related and interwoven that it is frequently impossible to tell just where the legitimate crosses the line into purely speculative channels. Furthermore, the transactions in the actual property are frequently influenced by the position of the speculative markets, these at times going far to control fluctuations from day to day. But in the main, the irrefragable law of supply and demand holds sway.

A MULTIPLICITY OF INFLUENCES ARE ALWAYS AT WORK

In so shaping markets that the price of a commodity is higher or lower to-day than it was yesterday or will be to-morrow. A factor of the highest importance and greatest force, at one time, may be relegated to the background at another and be apparently of no consequence. Again, influences legitimate in every sense, and which would ordinarily leave their impress on values, are at times arbitrarily set aside by something entirely unexpected and unforeseen but which for the moment wields great power. This general fact is much more true of such farm crops as the leading cereals, where speculation is greatly in evidence, than of such products as have no part in speculation, for various reasons—live stock, poultry and fruits and vegetables either perishable in nature, or of such a character as to preclude any thought of bargaining and sale for future delivery in the truly speculative sense. Probably in no product of agriculture are so many influences forceful in moving values up and down as in wheat; and this is here taken as an example portraying these things. Factors other than supply and demand include such as crop conditions at home and abroad, the foreign situation, political disturbances either in this or foreign countries, tariff or other national legislation, forces exhibited by the concentrated capital daily enlisted in speculation, and last but by no means least, sentiment. Daily fluctuations in the price of grain, making their impress upon every bushel the farmer has to sell, and often upon crops not yet seeded, are first registered on the big exchanges of this country and Europe.

BUYERS FOR THE WORLD'S GRAIN SURPLUS.

Agricultural trade, like that of every other branch of business, is made up into two great classes, the producers and sellers on the one hand, and the buyers for consumption on the other. The class last named naturally secures needed requirements where they can be purchased most cheaply. Narrow-

An angry man rides a mad horse.

ing this to the grain trade, England and portions of western Europe may be truthfully regarded as the market place for the world's surplus. Of the entire world's crops of cereals, only 7 to 10 per cent are exported, the remainder being consumed at home. But as most of this surplus, enormous when measured in bushels, looks to England and a few European countries for an outlet, the latter have a very powerful voice in shaping values. This means in effect that in the long run the grain markets are made very largely in the consuming countries of western Europe, which are enabled in a degree to dictate to the rest of the world what they shall pay; but not always, in seasons of general crop shortages.

LEADING FACTORS IN MOLDING PRICES.

A number of influences, varying in their power, may always be depended upon to shape grain prices. If there is a crop shortage, either at home or abroad, this tends to strengthen the market, and so with the condition of the growing or maturing crop. If the winter wheat area goes into the ground in rather poor condition, with possibly a decreased acreage, the fact is made the most of; if it is subjected to a hard winter, perhaps with alternate thaw and freeze in February and March, this is conducive to crop scares and higher prices. Then there is a possibility of damage later in the season through drouth, insect pests or early frosts in the autumn prior to full maturity. The position of stocks both in sight and comprising what is known as the "visible supply," and the indeterminable amount always in farmers' hands, are always closely watched by operators, an apparent partial exhaustion serving as a stimulus and a plethora as a deterrent. Occasional threatenings of war in Europe, suggestive of disturbances to farming operations there, are usually favorable to higher prices. The export movement of grain and flour is always closely watched, and if large, favors higher prices. In this same connection, reported short stocks in foreign countries are also helpful. In addition to all these influences named, speculative manipulation of the markets, sometimes developing into positive corners, and conducted by shrewd moneyed operators who perhaps ignore in a degree real legitimate elements, at times forces prices materially higher.

The converse is true in a general way in influencing the grain markets toward a lower level. Heavy crops at home, either present or prospective, the accumulation of a liberal surplus, the recognition of big farm reserves. So with heavy yields abroad, which either reduce the necessities of importing countries, or perhaps increase the exportable surplus of countries which compete in the world's markets with the United States. When the markets are dull it is an easy matter for bearish speculators to depress prices, through a little vigorous selling; because at such times other operators, even though favorable to higher prices, refuse to offer support, owing to lack of fresh buying incentive,

HANDLING THE ACTUAL GRAIN.

Thus an incalculable number of influences, some of them purely speculative, are always at work in shaping the price of every bushel of grain marketed day by day. And buyers of the actual property, either for local distribution, for mill, for shipment to distant points or abroad, are always largely dependent upon the speculative end of the market. Grain shipped

Keep conscience clear, then never fear.

by farmers and interior dealers to the big distributing centers, such as Chicago, St Louis, Minneapolis, Toledo, etc, is inspected and graded upon arrival. Much of it known as "contract grades," i e, grain good enough to be delivered on speculative contracts, is not immediately offered on the open market, perhaps going to fill sales previously made, or sent to public warehouses for later disposal. A large part of the grain is sold by sample, even though inspected and graded, seller and buyer meeting on common ground and fixing the price according to the merits of the property. The big trading halls of the exchanges include large numbers of sample tables. Here are displayed carefully drawn samples representing the average of every car of grain, flour, seed or mill stuffs on sale that day. Buyer and seller soon agree upon a price, transactions are quickly closed, payment is made by check, and the business is all done on a strictly cash basis. Farmers in our great grain states as a rule sell direct to dealer at country shipping point, but a large number in the aggregate load their own grain into car and ship to one of the big markets. Here the expenses for selling include such items as freight, inspection, commission, and at times other features, as switching and demurrage charges.

IN THE FOREIGN GRAIN MARKETS.

Liverpool and London are great centers for handling American wheat and corn, vast quantities also going to Continental and other foreign ports. The grain is shipped both in bag and in bulk, some of the ocean vessels containing 9,000 tons. The grain is at once unloaded and placed in warehouses built alongside the docks. Most of the American grain is sold to the foreign buyer before being shipped, and at a certain figure which includes freight, insurance charges, etc, the trading price here being governed very largely by the world's markets also. Wheat sold at \$1 per bushel by the producer will, with railroad freights in America, ocean freights across the Atlantic, and various warehouse and brokerage charges on the English side, increase in price about 15c, or in other words will be worth \$1.15 when it goes to the foreign miller. A very large business is done in London in buying and selling full cargoes or shiploads. Speculative trading in grain is followed extensively in Liverpool and Paris. Efforts have been made during the past year to introduce the system in London, while on the other hand, Germany has passed a law prohibiting trading in futures and is with difficulty enforcing it.

Crop Development in the United States.

With increasing areas brought under cultivation, and with improved methods of farming, the general trend in the great field staples is toward an increased crop production, one year with another. This is particularly true of cotton, hay, corn, oats and wheat, but less so of rye, barley, buckwheat and potatoes. In the following table, showing principal United States farm crops, stated in round millions and covering a long series of years, the figures for the most part are taken from returns made by the Department of Agriculture. But in a number of instances, as designated in the foot notes, commercial estimates are used. The estimates for wheat, corn and oats the past three years are those presented by *American Agriculturist*. The government estimates for many of these crops, especially wheat, are believed to be very much below the facts.

Most men kill themselves.

PRODUCTION PRINCIPAL FARM CROPS OF UNITED STATES, BY YEARS.

United States Department of Agriculture. In round millions.

	Cotton, bales.	Wheat, bush- els.	Corn, bush- els.	Oats, bush- els.	Rye, bush- els.	Barley, bush- els.	Buck- wheat, bushels.	Tobac- co, pounds.	Pota- toes, bush.	Hay, tons.
1897	c10.	c589	c1,823	c814			14		c174	c67
1896	8.5	c470	c2,269	c717	24	70	15	403	252	59.
1895	7.2	c460	c2,272	c904	27	87	13	492	297	47
1894	9.5	460	1,213	662	27	61	12.1	407	171	55
1893	7.5	396	1,619	639	27	70	a	483	183	66
1892	c6.7	516	1,628	661	a	a	a	a	a	a
1891	c9.	612	2,060	738	a	a	a	a	a	a
1890	c8.7	399	1,490	524	29	a	a	a	a	a
1889	7.5	491	2,113	751	28	a	12	a	a	a
1888	6.9	416	1,987	701	28	64	11	566	202	47
1887	7.	456	1,456	660	21	57	12	386	134	41
1886	6.3	457	1,665	624	24	59	11	533	168	42
1885	6.6	357	1,936	629	27	58	13	563	175	45
1884	5.7	513	1,795	584	29	61	11	541	191	48
1883	5.7	421	1,551	571	28	50	8	451	208	47
1882	7.	504	1,617	488	30	49	11	513	171	38
1881	c5.5	383	1,195	416	21	41	9	450	109	35
1880	5.7	499	1,717	418	25	45	15	446	168	32
1877	c4.8	364	1,343	406	21	34	10	—	170	32
1875	c4.6	292	1,321	354	18	37	10	379	167	28
1873	c4.1	281	932	270	15	32	8	373	106	25
1870	b3.	236	1,094	247	15	26	10	251	115	25
1865	0.3	149	704	225	20	11	18	185	101	24
1860	4.9	173	839	173	21	16	18	434	111	19

a No estimate for this year. b Crop of preceding year. c Commercial estimates.

AREA PRINCIPAL FARM CROPS OF UNITED STATES, BY YEARS.

(In round millions of acres, United States Department of Agriculture.)

	Cotton.	Wheat.	Corn.	Oats.	Rye.	Barley.	Buck- wheat.	Tobacco.	Potatoes	Hay.		Cotton.	Wheat.	Corn.	Oats.	Rye.	Barley.	Buck- wheat.	Tobacco.	Potatoes	Hay.
1897		b39	b83	b29				0.5	b2.7	b41	1885	18	34	73	23	2	2.7	0.9	0.7	2.3	40
1896	23	b37	81	b30	1.8	3	0.8	0.6	b2.8	43	1884	17	39	70	21	2.4	2.6	0.9	0.7	2.2	39
1895	20	34	82	b30	2	3.3	0.8	0.6	3	44	1883	17	36	68	20	2.3	2.4	0.9	0.6	2.3	36
1894	24	35	63	27	2	3.2	0.8	0.5	2.7	48	1882	17	37	66	18	2	2.3	0.8	0.7	2.2	32
1893	20	35	72	27	2	3.2	0.8	0.7	2.6	50	1881	17	38	64	17	1.8	2	0.8	0.6	2	31
1892	b18	39	71	27	a	a	a	a	a	a	1880	15	38	62	16	1.8	1.8	0.8	0.6	1.8	26
1891	b21	40	76	26	a	a	a	a	a	a	1877	—	26	50	13	1.4	1.6	0.6	—	1.8	25
1890	b21	36	72	26	a	a	a	a	a	a	1875	—	26	45	12	1.4	1.8	0.6	0.6	1.5	24
1889	20	38	78	27	a	a	a	a	a	a	1873	—	22	39	10	1.1	1.4	0.5	0.5	1.3	22
1888	19	37	76	27	2.4	3	9	0.7	2.5	39	1870	—	19	39	9	1.2	1.	0.5	0.3	1.3	20
1887	19	38	72	26	2	2.9	9	0.6	2.4	38	1865	—	12	19	7	1.4	0.5	1.0	0.2	1	16
1886	18	37	76	24	2	2.7	9	0.7	2.3	37											

a No estimate for this year. b Commercial estimate.

Wheat Crops, Markets and Distribution.

No grain crop is more nearly universal to the whole world than wheat. It is grown successfully in all warm and comparatively cold countries. It is a staple in Siberia and New Zealand; in Manitoba and North Dakota, and in Texas, Argentina, India and South Africa. Wheat harvesting is going on each month in the calendar year. New Zealand and Chile harvest in Jan-

No man can be glorious who is not laborious.

uary, Peru, the Cape, Burmah, Argentina and Australia in November and December, while in the intermediate months all record work of this character. The world's crop of wheat is about 2450 million bushels. Of this the United States produces nearly twice as much as any other country, and is credited with an annual yield of 20 to 26 per cent of the whole. The principal wheat growers are the United States, Russia, France, India, Germany and Argentina. While so universal a crop, only a few countries have any considerable surplus above home consumptive requirements. These chiefly are the United States, Russia and Argentina. To a certain extent India, Canada, Turkey, Austro-Hungary and Australasia are regarded as surplus countries. But in recent years India and Australasia have dropped out of the list of important exporters, and now it is even hinted that Hungary must soon become an actual importer.

THE BIG BUYERS OF WHEAT

Are first and foremost, the United Kingdom, which raises a crop of about 60 million bushels annually, but requires in addition nearly 200 millions more. Much of the continent of Europe is an importer of wheat and flour. According to Broomhall, the recognized authority on world's crops, France, while an enormous producer of wheat, still requires net imports each year of 12 to 20 million bushels, and occasionally as high as 50 millions and upward. Germany needs annual net imports of 25 to 50 million bushels; Belgium, 25 to 45; Holland, 12 to 16; Italy, 20 to 40; Switzerland about 15, and others enough to make a grand total for all importing countries of 350 to 400 million bushels annually. Stated differently, the average weekly wheat and flour requirements of western Europe are equivalent to seven million bushels and upward. In recent years the countries indicated have absorbed, in the way of imports over home production, as much as 16 per cent of the world's crop of wheat, and as little as 11 per cent, with an annual average of 15 per cent. These figures are shown in more detail in the subjoined table.

YEARLY SHIPMENTS OF WHEAT (AND FLOUR) FROM ALL COUNTRIES TO EUROPE.

In bushels, compiled from Corn Trade Year Book.

Year ended July 31.	Total shipments.	Average weekly.	World's crop.	Per cent taken by Europe.
1897	330,856,000	6,362,615	2,224,000,000	14.9
1896	352,168,000	6,772,461	2,384,000,000	14.
1895	399,848,000	7,689,385	2,469,000,000	16.2
1894	273,304,000	5,255,846	2,563,000,000	10.7
1893	396,480,000	7,624,615	2,512,000,000	15.8
1892	380,664,000	7,320,461	2,441,000,000	15.6
1891	321,640,000	6,185,385	2,464,000,000	13.0
1890	263,440,000	5,066,154	2,284,000,000	11.5

IN THE DISTRIBUTION OF THE WORLD'S ANNUAL YIELD

Of wheat, the continent of Europe is credited with half the grand total. North and South America together produce a quarter to a third of the world's crop, the United States in turn yielding more than all the remainder of the western hemisphere. The figures in the following table are made up almost wholly from the compilation of George Broomhall of the Liverpool Corn Trade News, a recognized authority on the world's crops. Some of them, especially for the United States, differ somewhat from *American Agriculturist's* estimates of yield.

Fly pleasures and they'll follow you.

THE WORLD'S WHEAT CROP.

(In millions of bushels.)

In one or two cases of obvious errors in the American and Indian official returns, commercial estimates are given in preference.

EUROPE.	1897	1896	1895	1894	1893	1892	1891
France.....	248	340	340	343	278	382	219
Russia proper.....	215	300	291	340	360	234	163
Poland.....	17	20	17	17	20	23	12
Caucasia.....	30	45	67	59	66	69	80
Hungary.....	93	140	144	146	150	141	139
Austria.....	32	42	40	47	42	46	39
Croatia & Slavonia.....	2	6	6	7	7	6	6
Herzegovina & Bosnia.....	2	2	2	2	2	2	2
Italy.....	88	134	114	112	131	112	138
Germany.....	105	110	103	111	110	117	86
Spain.....	100	70	100	104	86	74	71
Portugal.....	10	6	7	10	6	6	7
Roumania.....	29	80	66	44	58	58	60
Bulgaria.....	25	40	30	25	29	29	30
Eastern Roumelia.....	3	8	4	2	3	5	5
Servia.....	7	14	11	7	10	9	8
Turkey-in-Europe.....	16	22	18	16	16	16	22
Greece.....	3	5	4	5	7	8	8
United Kingdom.....	54	59	38	61	51	61	75
Belgium.....	19	19	18	19	17	20	16
Holland.....	5	6	6	5	6	6	5
Switzerland.....	4	4	6	5	2	4	2
Sweden.....	4	5	4	4	4	3	4
Denmark.....	5	5	4	4	5	5	5
Norway.....	1	1	1	1	1	1	1
Cyprus, Malta, etc.....	2	2	2	2	2	2	2
Total Europe.....	1,119	1,485	1,443	1,498	1,408	1,359	1,205
AMERICA.							
U. S. A.....	590	470	490	525	475	580	685
Canada.....	60	38	53	42	42	48	60
Mexico.....	15	15	14	20	17	15	12
Argentina.....	60	25	44	60	90	56	37
Chile.....	16	13	15	15	15	18	16
Uruguay.....	6	3	5	9	6	3	4
Total America.....	747	564	621	671	645	720	814
ASIA.							
India.....	205	206	256	232	240	206	285
Turkey-in-Asia.....	50	40	45	43	45	40	43
Persia.....	20	20	22	22	19	18	21
Japan.....	14	14	16	15	15	15	15
Total Asia.....	289	280	339	312	319	279	364
AFRICA.							
Algeria.....	16	18	24	28	20	24	28
Tunis.....	6	6	7	10	6	8	7
Egypt.....	6	7	8	8	8	7	10
The Cape.....	4	2	3	5	5	4	4
Total Africa.....	32	33	42	51	39	43	49
AUSTRALASIA.							
Victoria.....	12	7	6	11	15	15	14
South Australia.....	6	3	6	8	14	9	6
New Zealand.....	10	7	7	4	5	8	10
New South Wales.....	7	7	5	7	7	7	4
Tasmania.....	1	1	1	1	1	1	1
Other Australia.....	1	1	1	1	1	1	1
Total Australasia.....	37	26	26	32	43	41	36
World's total, bu.....	2,224	2,388	2,471	2,564	2,514	2,442	2,468

N. B.—The crops are those harvested prior to the first September in the years mentioned, excepting in the cases of Australasia, Argentina, Uruguay, The Cape and Chile, which are those of the Nov.-Feb. following.

THE WHEAT CROP OF THE UNITED STATES.

The area devoted to this important cereal has increased from an average of about 25 million acres during the ten years ended 1879, to 35 millions the first five years of the present decade, and 37 to 39 millions the last two crops harvested. Winter wheat comprises, roundly, two-thirds of the entire area. The annual yield has increased from some 300 million bushels 20 years ago, to 600 millions in what may be known now as a full crop. The average yield per acre is 12 to 15 bushels, taking the country at large. The 1897 crop was the greatest, with one exception, ever produced. The per capita production of wheat on the basis of population, is six to nine bushels. The estimated requirements for domestic consumption and seeding are 360 to 380 million bushels, leaving the remainder available for export to foreign countries. While grown to greater or less extent in every state, a comparatively few produce the bulk of the crop. Leaders include Minnesota, North and South Dakota in spring wheat, and California, Kansas, Missouri, Indiana, Michigan and Ohio, in winter wheat. In the following table the figures presented are those compiled by the crop reporting bureau of *American Agriculturist*:

WHEAT ACREAGE AND YIELD BY STATES.*

	WINTER.				Bushels	
	Acres	Av. yield	1897	1896	1897	1896
N. Y.	441	420	19.5	15.8	8,600	6,636
Pa.	1,172	1,127	18.9	15.0	22,151	16,905
Tex. ...	472	425	15.2	11.9	7,174	5,058
Ark. ...	189	172	12.5	7.5	2,363	1,290
Tenn. ..	881	847	13.0	9.8	11,453	8,301
W. Va.	401	386	14.5	8.5	5,815	3,281
Ky.	944	899	15.2	9.2	14,449	8,271
Ohio,	2,175	2,021	17.6	9.8	38,280	19,806
Mich.,	1,513	1,225	16.9	13.5	25,570	16,538
Ind.,	2,508	2,756	13.3	10.0	33,356	27,560
Ill.,	890	1,792	11.2	13.8	9,968	24,730
Wis.,	215	282	12.0	13.6	2,580	3,835
Ia.,	205	188	14.0	14.6	2,870	2,745
Minn.,	86	89	13.0	12.0	1,118	1,068
Mo.,	1,500	1,563	10.6	12.2	15,900	19,069
Kan.,	3,377	3,070	18.5	12.5	62,547	38,375
Neb.,	135	135	18.5	14.5	2,498	1,958
Cal.,	2,557	3,409	13.6	14.6	34,775	49,771
Ore.,	334	318	21.0	16.0	7,014	5,088
Wash.,	343	312	25.5	15.5	8,747	4,836
Okla.,	810	—	21.5	—	17,415	—
Other,	2,783	3,266	14.0	11.7	38,962	38,212

Tot'l, 23,931 24,702 15.6 12.3 373,533 303,433

SPRING.

N. E.	19	16	20.0	17.5	380	280
Mich.,	29	31	15.2	13.0	441	403
Ill.,	78	43	12.0	13.0	936	559
Wis.,	408	371	13.5	14.5	7,548	5,380
Minn.,	3,938	3,101	13.7	13.8	53,951	42,794
Ia.,	1,120	740	13.2	15.4	14,784	11,396
Kan.,	174	146	15.0	11.0	2,610	1,606
Neb.,	1,310	1,139	16.4	13.0	21,484	14,807
N. L.,	3,367	2,398	13.5	11.5	45,455	27,577
S. D.,	3,166	2,898	9.6	13.0	30,395	37,414
Cal.,	79	84	11.0	13.5	869	1,134
Ore.,	514	428	22.5	16.3	11,565	6,976
Wash.,	384	340	28.0	15.5	11,752	5,270
Other,	650	739	19.0	15.0	13,300	11,085

Total, 15,236 12,454 14.1 13.3 215,470 166,681

T'l W&S 39,167, 37,156 589,003 470,114

* In thousands of acres and bushels.

VISIBLE SUPPLY OF WHEAT IN UNITED STATES AND CANADA.

In millions of bushels, first week in each month.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1897....	55	48	43	39	34	24	18	15	21	29	35	
1896....	70	66	63	60	56	50	47	46	46	50	59	56
1895....	88	83	79	74	62	52	45	39	35	42	53	64
1894....	80	80	76	71	65	59	54	60	67	71	80	85
1893....	81	81	79	78	73	71	62	59	57	63	71	78
1892....	46	43	42	41	38	30	24	24	36	48	65	73
1891....	26	24	23	22	21	16	13	17	20	28	36	42
1890....	34	31	29	27	23	22	20	18	18	17	21	25
1889....	38	35	32	29	25	20	14	13	14	19	26	33
1888....	44	42	38	34	32	26	24	22	29	32	33	36
1887....	63	62	58	52	47	43	34	33	31	31	34	40
1886....	58	55	52	49	43	35	28	35	43	51	56	60
1885....	48	48	48	44	41	41	40	43	45	52	56	
1884....	36	33	35	32	24	19	15	14	18	26	36	43
1883....	21	22	23	23	21	20	19	18	21	27	31	33
1882....	18	18	17	12	11	9	10	14	12	13	16	20
1881....	29	28	26	21	19	15	16	17	20	19	21	20

FARM STOCKS OF WHEAT FOR 15 YEARS.

[U. S. Dept. Agr. Amt. on hand Mar. 1.]

	* Farm Million bush.	price, cts.		Farm Million bush.	price, cts.
1897	88	71.6	1889	115	92.6
1896	123	50.9	1888	132	68.1
1895	127	49.1	1887	130	68.7
1894	137	53.8	1886	117	77.1
1893	153	62.4	1885	169	64.5
1892	171	83.9	1884	119	91.1
1891	143	83.8	1883	143	88.2
1890	156	69.8	1882	113	119.2

* Average price on farms preceding December,

WORLD'S AVAILABLE STOCKS OF WHEAT.

Bradstreets makes a specialty of compiling the quantity of wheat and other grains contained in warehouses at a large number of principal points of accumulation all over the United States and Canada. Beerbohm does the same thing from stocks in Europe and afloat for Europe. The two together including Australian stocks make up the "world's available." These weekly returns are carefully verified on the first of each month. The trade gives much weight to these figures, because they cover stocks at more points than the so-called "visible supply." Other things being equal reductions in the "world's available" are indicative of better prices, while increases are bearish factors. Hence, the value of these figures for a series of years to compare with each month's report as it appears.

The figures show the available stocks at the first of each month in millions of bushels.

	1897			1896			1895			1894			1893			1892			1891		
	U. S. & Canada	Europe & afloat.	Total—world.	U. S. & Canada.	Europe & afloat.	Total—world.	U. S. & Canada.	Europe & afloat.	Total—world.	U. S. & Canada.	Europe & afloat.	Total—world.	U. S. & Canada.	Europe & afloat.	Total—world.	U. S. & Canada.	Europe & afloat.	Total—world.	U. S. & Canada.	Europe & afloat.	Total—world.
Jan.	77	62	139	105	65	170	127	58	185	110	80	190	116	68	184	78	78	156	60	51	111
Feb.	71	58	129	103	57	160	120	61	181	109	75	184	114	64	178	73	83	156	55	50	105
Mar.	64	56	120	99	55	154	111	60	171	106	78	184	111	67	178	68	78	145	51	49	100
Apr.	58	64	122	93	51	144	102	61	163	98	78	176	113	70	183	61	81	144	48	52	100
May	51	56	107	84	48	131	91	64	155	91	79	171	99	73	172	52	74	126	38	58	96
Jun.	39	58	97	71	47	118	73	69	142	81	80	161	89	78	167	42	78	120	30	60	90
July	28	50	78	63	42	105	60	71	131	74	73	147	76	77	153	36	64	100	22	60	83
Aug.	26	40	66	60	37	97	54	65	119	75	67	142	73	78	151	34	64	98	25	61	86
Sept.	25	42	67	61	36	97	53	36	97	88	63	151	70	79	149	47	65	111	28	58	87
Oct.	38	54	92	69	46	116	65	65	130	101	61	162	78	80	158	68	64	131	46	65	111
Nov.	50	66	146	84	54	138	85	68	154	118	61	179	91	82	173	87	67	154	63	70	134
Dec.	57	73	130	83	66	149	96	68	161	128	57	185	107	83	190	105	71	176	73	85	185

MOVEMENT AND MARKET.

What are known as primary markets include Chicago, Milwaukee, Minneapolis, Duluth, St Louis, Toledo, Detroit, Kansas City and Peoria. Most of these cities are points of wheat accumulation, particularly in winter, a time prior to the opening of cheap water navigation, when grain moves rapidly toward tidewater to be available for ocean-going vessels. The leading secondary or seaboard markets are New York, Boston, Philadelphia, Baltimore, New Orleans, Galveston, Newport News and San Francisco. At all these points extensive shipping interests are engaged in forwarding to foreign ports. Exports of wheat and wheat in the form of flour vary greatly according to domestic supply and foreign requirements. Following our big crop of 1891, we exported about 225 million bushels wheat and flour. But in years of small foreign business this is as low as 110 millions, with 150 millions regarded a liberal total. Taking Chicago as a representative market, the following table shows the trend of prices covering a long series of years:

A man is oftenest deceived by himself.

WHEAT PRICES AT CHICAGO, NO. 2 CASH.

In cents per bushel.

	January.	May.	July.	September.	December.
1897	71a 94	68a 98	68a 80	85a101	88a109
1896	55a 69	57a 68	54a 62	55a 70	74a 92
1895	48a 55	60a 85	61a 75	55a 65	34a 60
1894	59a 64	53a 60	50a 60	50a 56	52a 57
1893	72a 78	68a 76	54a 66	62a 70	59a 65
1892	84a 91	80a 86	76a 80	71a 75	69a 73
1891	87a 96	99a108	84a 95	90a100	69a 94
1890	74a 78	89a100	85a 94	95a105	87a 93
1889	92a102	77a 87	76a 85	75a 83	76a 80
1888	75a 79	80a 90	79a 86	90a200	97a106
1887	77a 80	80a 89	67a 71	67a 72	75a 80
1886	77a 85	72a 79	73a 79	72a 77	75a 80
1885	76a 82	86a 91	85a 91	76a 87	83a 89
1884	88a 96	85a 95	79a 85	73a 80	89a 76
1883	93a104	107a114	96a103	92a100	94a 99
1882	125a135	123a129	126a136	97a108	90a 95
1881	95a100	101a113	108a122	120a141	124a130
1880	114a133	112a119	86a 97	87a 96	93a111
1879	81a 87	90a103	88a105	85a106	122a134
1875	88a 91	89a107	99a129	105a119	93a104
1873	119a126	122a134	114a146	89a121	105a117

According to records kept by the Chicago Trade Bulletin wheat touched \$1.61 in August, 1872, \$2.47 in August, 1869, \$2.85 in May, 1867, and sold at a range of 80 cents to \$1.15 in 1863.

Consumption Per Capita of Wheat in United States.

In 1878, Mr. J. R. Dodge, statistician United States Department of Agriculture, investigated the question of food consumption of wheat in this country. His results indicated an annual average use of 4 2-3 bushels per capita. In recent years some authorities have inclined to the belief that this rate is now too high, but no data have ever been made public in support of such contention. In 1896, Bradstreets, which had inclined to the opinion that the old rate was too high, secured returns of family and industrial consumption for 30,227 persons and the average was 5,387 bushels. The proportion of adults in those making this return was larger than the proportion in our whole population, so that this figure may be considered as a little above the actual facts.

The most complete data yet gathered on this subject were by the National Bureau of Labor in 1890 and 1891. Data covering flour and bread consumption in 1677 typical families, located in 24 states, showed an average wheat consumption of 4.77 bushels per capita. It is evident that the original estimates of 4 2-3 bushels is in line with all later data yet published.

In the table published in the Corn Trade Year Book covering prices in English wheat for 240 years, some interesting figures are included. For example, in 1894, the lowest year in two and a half centuries, with one exception, English wheat was quoted the equivalent of 68½ cents per bushel, and it is necessary to go back to 1761 to find any level approaching that, when the price was 80 cents. In 1743-1744 the price was down to 66 cents. Highest figures were touched at the beginning of the present century, when wheat sold at \$3.58 per bushel in 1801, and in 1812 (year of the second war with United States), when it was \$3.80. In 1776-1783, the period of our revolutionary war, wheat sold in England at a range of \$1 to \$1.60. In 1700 the price was \$1.07 and in 1656, the earliest date of record, \$1.15 per bushel.

Great talkers need no ears.

King Corn.

Few countries make a specialty of corn growing, aside from the United States, our farmers practically enjoying a monopoly here, even more than is the case with cotton. A world's crop of corn is a little less than 2,200 million bushels, taking as a fair average the five years 1892-1896 inclusive, and of this the United States produces 1,800 millions, or 82 per cent. So far as competing with our own crop is concerned, that of Argentina is perhaps most important, in view of the large proportion available for export, even though the yield of Austro-Hungary, and possibly one or two other countries, is greater in the aggregate. In the past few years greatly increased attention has been given corn growing in Argentina, and the crop is capable of great expansion in that comparatively new country. While Italy and portions of eastern Europe raise a good deal of corn it is mostly consumed at home. Up to the present time Russia has never attempted much in this direction. Moderate quantities are produced in Egypt, while the yield of our Canadian neighbor is something. Aside from the crop possibilities of Argentina, there is nothing to suggest the slightest fear that the prestige long maintained by the United States will ever be lost.

WORLD'S CORN CROP, MILLIONS OF BUSHEL.

[Compiled chiefly from Corn Trade Year Book.]

	1896.	1895.	1894.	1893.	1892.	Average	% of tot
Argentina	80	72	16	22	36	45	2.0
Austro-Hungary	140	136	78	144	129	125	5.2
Bulgaria, E. Roumelia	6	8	8	16	8	9	0.4
Canada	18	16	16	14	11	15	0.7
Italy	74	68	58	76	70	69	3.2
Roumania	64	69	39	71	96	68	3.2
*Russia	13	17	13	28	22	18	0.8
United States	2,270	2,272	1,212	1,620	1,628	1,800	82.3
Egypt	34	34	32	30	30	32	1.5
Uruguay	6	6	5	3	3	5	0.2
Total	2,705	2,698	1,477	2,024	2,033	2,187	

*Fifty governments according to agricultural ministry.

DISTRIBUTION AND CONSUMPTION OF WORLD'S CROP.

Taking the world's production as a whole, a very small percentage is available for export in the raw state. Western Europe is a large buyer, chiefly for feed purposes, although some encouraging progress is being made in introducing this healthful and wholesome product as a dietary article. A number of years ago Colonel Murphy was sent abroad by our government and did considerable missionary work in this direction. Within the past year a campaign has been inaugurated, largely through the work of *American Agriculturist*, to develop and further materially increase the consumption of corn, thus directly benefiting producers. Corn is put to various uses not dreamed of years ago. The glucose industry has developed rapidly, requiring large quantities of corn, and there is here a resultant valuable by-product suitable for live stock rations. Corn oil, though comparatively unknown, is coming into some prominence. Progressive millers are constantly introducing new cereal foods into which corn largely enters, and lastly, the pith and fiber of cornstalks are being transformed into valuable material.

After the United States and Argentina, there is little corn which can be classed as surplus for export. Roumania annually ships out 15 to 50 million bushels, Russia as high as 25 millions and north Africa insignificant amounts.

If you have time don't wait for time.

to southern Europe. First and foremost among the buyers is the United Kingdom, which imports annually 50 to upward of 100 million bushels. Germany requires 12 to 35 millions annually, Holland 5 to 10, France much the same, while Italy, Austria, Denmark, Belgium, Switzerland, etc. may usually be classed among moderate importers.

THE CORN CROP OF THE UNITED STATES.

This outranks by far that of every other, both in bulk and value. In recent years our farmers have annually devoted more than 80 million acres to this great crop, a considerable increase over the early '90s and more remote periods. On the basis of the inside farm price, the value of the corn crop of the United States is 500 to 800 million dollars annually. Taking the country as a whole, the average annual rate of yield per acre is 20 to 27 bushels, and in exceptionally good years a little more. Six states of the central west, known as the great surplus states, show aggregate yields very much ahead of other parts of the country. These include Iowa, Nebraska, Kansas, Missouri, Illinois and Indiana. Among other very important corn states are Ohio, Kentucky, Tennessee, Texas, etc., and it is a noteworthy fact that the corn belt in the last few years has crept north rapidly, and good crops are now secured where a generation ago such would have been thought impossible.

CORN ACREAGE IN UNITED STATES AND YIELD BY STATES (THOUSANDS).

	Acres		Av. yield bu.		Bushels	
	1897	1896	1897	1896	1897	1896
N. Y.	515	505	32.0	32	15,480	16,160
Pa.	1,341	1,341	29.0	34	38,889	45,594
Tex.	3,612	3,225	19.0	11	68,628	35,475
Ark.	2,209	2,104	17.4	14	38,437	29,456
Tenn.	3,310	3,227	18.4	23	60,904	74,221
W. Va.	683	683	21.0	25	14,343	17,075
Ky.	3,133	3,132	20.0	29	62,660	90,828
O.	3,100	3,399	33.6	39	104,160	132,561
Mich.	1,210	1,116	30.0	34	36,300	37,944
Ind.	4,250	3,843	27.0	36	114,750	138,348
Ill.	8,100	8,050	29.0	37	234,900	297,850
Wis.	1,339	1,313	30.0	34	40,170	44,642
Minn.	1,051	1,156	30.1	31	31,665	35,836
Ia.	8,100	7,826	27.5	38	222,750	297,388
Mo.	6,753	6,621	21.5	27	145,190	178,767
Kan.	8,002	8,924	20.0	26	160,040	232,024
Neb.	7,109	7,039	26.8	35	190,521	246,365
N. D.	15	20	26.2	25	393	500
S. D.	1,005	1,104	25.2	29	25,326	32,016
Cal.	74	74	27.0	27	1,998	1,998
Ore.	18	16	27.5	25	495	400
Wash.	12	12	23.0	24	276	288
Other	17,829	16,672	12.0	17	214,068	283,424
Total	82,780	81,402	22.0	27.9	1,823,343	2,269,160

For earlier corn crops extending over a long series of years, see table Production of Principal Farm Crops.

CORN PRICES AT CHICAGO, NO. 2 CASH.

[In cents per bushel].					
	Jan.	May.	July.	Sept.	Dec.
1897....	21@23	23@26	24@29	27@32	25@27
1896....	25@28	27@30	24@28	19@22	22@24
1895....	40@46	46@55	41 47	31@36	24@27
1894....	34@36	36@39	40@46	48@58	44@48
1893....	40@45	29@45	35@42	37@43	34@37
1892....	37@39	40@100	47@52	43@49	39@43
1891....	47@50	55@70	57@66	48@68	39@59
1890....	28@30	32@35	33@47	44@50	47@53
1889....	33@36	33@36	34@37	30@34	29@35
1888....	47@50	54@60	45@51	40@46	33@36
1887....	35@38	37@39	34@38	40@44	46@52
1886....	36@37	34@37	34@45	36@41	35@38
1885....	34@40	44@49	45@48	40@45	36@43
1884....	51@58	52@57	49@57	51@87	34@40
1883....	49@61	52@57	47@53	47@53	54@63
1882....	60@62	68@77	74@83	57@75	48@60
1881....	36@38	41@45	45@51	60@74	58@64
1880....	36@41	36@38	33@38	39@41	35@42
1879....	29@31	33@36	34@37	32@39	39@43
1878....	38@44	34@41	35@41	34@38	29@32
1877....	41@44	43@58	46@51	41@46	41@46
1876....	40@45	44@49	42@48	43@48	43@47
1875....	64@70	60@76	67@77	54@62	45@54
1874....	49@61	55@66	58@80	66@86	71@85
1873....	30@31	37@43	32@34	32@44	44@54

The highest price paid for corn in the past 40 years, according to the Chicago Trade Bulletin, was \$1.12 per bushel, in 1867, and \$1.41 in 1864, and the lowest, 19½¢ in 1896. The dollar point touched in 1892 was on the culmination of a "corner."

MOST OF THE DOMESTIC CROP IS CONSUMED

In the counties where grown, yet there is a liberal surplus available for export, and foreign purchases in recent years have been highly encouraging, increasing marvellously, as shown in a table presented elsewhere in these pages. Low rates of freight from the producing sections to the seaboard,

The worst wheel of the cart makes most noise.

especially during the period of navigation, are great aids to the distribution of the surplus, enormous quantities being carried every summer from Chicago and Buffalo at a rate of 1 cent per bushel. Leading export points are New Orleans, Newport News, Baltimore, Philadelphia, New York and Boston.

PRICES HAVE RULED LOW

Most of the time since the short crop of 1894. Following that year were two phenomenally heavy crops, which meant accumulations and enormous reserves in farmers' hands carried over from one season into another. This last fact has been an element in the low market during the past winter, even though the crop of 1897 proved 450 million bushels short of the average of the two preceding years. The low prices have greatly stimulated the foreign demand, and exports the past year and more have been unprecedentedly large. During the fiscal year 1897 exports of corn were 176,916,000 bushels compared with 101 millions in 1896, and only 28 millions the year previous, following the short crop of 1894. The 1889 crop was one of the greatest on record, and during the succeeding year exports amounted to 103 million bushels. The profit for the farmer, however, does not rest in the volume of exports so much as in the judicious utilization of the corn on the farm, converting it into beef, pork, mutton, dairy products, etc., and marketing it in this concentrated shape.

VISIBLE SUPPLY OF CORN IN UNITED STATES AND CANADA.

[In round millions of bushels, first week of month named].

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1897.....	20	23	26	25	17	14	16	17	31	37	45	40
1896.....	6	12	13	17	11	10	9	12	14	14	19	17
1895.....	11	13	13	13	9	11	9	5	5	5	5	6
1894.....	10	15	19	17	10	8	5	4	3	4	3	5
1893.....	11	14	16	15	10	8	8	7	6	9	8	7
1892.....	7	7	10	12	6	4	8	7	8	11	13	11
1891.....	3	3	3	3	3	6	4	4	7	8	3	2
1890.....	9	12	14	21	13	14	14	12	8	9	7	2
1889.....	10	13	16	17	12	12	9	7	12	12	8	6
1888.....	6	9	9	9	8	9	11	8	8	10	11	7
1887.....	14	16	16	19	19	13	10	8	6	7	8	5
1886.....	8	7	11	16	12	8	9	9	12	13	13	11
1885.....	4	5	6	9	8	5	5	4	5	5	5	4
1884.....	10	13	14	17	12	8	7	4	4	7	5	5
1883.....	9	11	14	18	17	14	13	11	11	14	10	9
1882.....	17	18	14	10	8	10	7	6	6	7	4	6
1881.....	16	17	16	14	13	10	15	16	23	27	26	19

Area and Population of the Earth.

Ravenstein's estimate of the earth's fertile region, in square miles, is 28,269,200; steppe, 13,901,000; desert, 4,180,000; polar region, 4,888,800.

The population of the earth at the death of the Emperor Augustus, estimated by Bodio, was 54,000,000. The population of Europe hardly exceeded 50,000,000 before the fifteenth century.—*Mulhall*.

The area and cubic contents of the earth, according to the data of Clark, are: Surface, 196,971,984 square miles; cubic contents, 259,944,035,515 cubic miles.

An estimate of population of the earth, made by Drs. Wagner and Aupan, editors of "Bevölkerung der Erde" (Perthes, Gotha, 1891), is as follows: Europe, 357,379,000; Asia, 825,954,000; Africa, 163,953,000; America, 121,713,000; Australia, 3,230,000; Oceanic Islands, 7,420,000; polar regions, 80,400. Total, 1,479,729,400. The estimate of area of the continents and islands by the same authorities is 52,821,684.

COST OF GROWING CORN.

A great many estimates of the cost of producing certain farm staples have appeared from time to time, but as a rule these estimates have been based upon individual experience with small plats, or have merely represented guesses made by a larger number of individuals, without being based upon any systematic records at all. In the nature of things, such estimates, based as they are upon different conceptions of what is properly cost, and made without any exact records as a foundation, differ widely in conclusions, and are of little practical value.

The *Orange Judd Farmer* and *American Agriculturist*, in order to contribute exact data to this discussion, in the spring of 1896 prepared and sent

Don't misinform your doctor or your lawyer.

to a large number of commercial corn growers in the west, circulars calling for exact day-by-day history of the crop of that year. These circulars were sent out before a plow entered the ground in spring, and were in the hands of the individual growers until the last bushel of the crop was husked and cribbed. Throughout the whole season every hour's work and every item of cost devoted to the crop was entered up at the time, thus eliminating all estimates and making the record an absolute statement of fact from the beginning of plowing to the finish of cribbing. These circulars, when completed and returned, furnished data from which it was possible to make an exact statement of the cost of growing the corn crop included in the record.

In figuring this "cost," it is proper to state exactly what items were considered a part of cost. Taxation was the first and fixed charge. The wage cost of all the labor devoted to the crop, the board maintenance of such labor, cost of seed, cost of team, maintenance while actually engaged, and depreciation or wear and tear of farming implements, made up the other items. It will be noted that certain items usually included in estimates of cost are omitted. Interest on the investment, because the object aimed at was cost to the grower, and the addition of an allowance for interest on capital involved, would give, not cost, but a selling price at which the grower would net a certain profit on his capital. No allowance for fertilizing was made, because on the area under record the expenditure for fertilizer was too small to cut any figure in averages. No allowance was made for loss of fertility of the land, because such an allowance must, of necessity, be purely a personal estimate, and the plan followed was to present exact records.

The schedules developed the number of acres in each field included in the record, and the number of days' work required to perform the successive items of cultivation required in making a crop. Where labor was hired, the actual wages paid were used in reducing this labor down to labor cost. Where the owner or his family did the labor, it was reduced to labor cost, on the basis of the normal rate of wages paid in that neighborhood.

Perfect returns were received from growers whose corn acreage included in the record amounted to 2632 acres, located in 96 counties of eight great corn states. The distribution and the permanent characteristics involved were as follows:

	Ky.	Ohio.	Ind.	Ill.	Iowa.	Mo.	Kan.	Neb.	Total.
Acres in corn.....	140	126	301	487	284	200	351	743	2632
Av. value per acre....	\$21.21	\$62.42	\$47.66	\$70.09	\$47.98	\$31.20	\$20.75	\$22.33	\$39.16
Taxation per acre....	.105	.558	.445	.303	.325	.295	.186	.148	.292
Wages p. mo. with b'd	11.50	15.40	16.00	17.66	18.75	14.29	16.25	17.44	15.91
Per mo. without b'd	15.00	21.85	21.75	24.00	26.60	19.50	22.58	24.74	22.00

The first step involved in making the crop was the clearing away of the old stalks from previous crops. This was necessary on but 36.2 per cent of the total area, and the labor cost and the labor maintenance involved in removing all the stalks that had to be cleared away was as follows:

	Labor cost.	Maintenance.	Total.	Av. per acre for whole area.
Kentucky.....	.....	.....	.....	.....
Ohio.....	\$0.85	\$0.35	\$1.20	\$.009
Indiana.....	8.18	2.94	11.12	.037
Illinois.....	10.01	3.59	13.60	.028
Iowa.....	14.60	6.12	20.72	.073
Missouri.....	1.45	.53	1.98	.010
Kansas.....	7.47	2.91	10.38	.030
Nebraska.....	16.05	6.71	22.76	.031
Total.....	\$58.61	\$23.15	\$81.76	\$0.031

This statement shows that the average cost of removing stalks, exclusive of team maintenance, taking into consideration the total acreage, was 3.1 cents per acre.

Listing was practiced on 595 acres, but otherwise ordinary forms of cultivation were followed. The average accomplishment of a day's labor in the different items of work going to make up the cultivation of the crop was as follows, in acres:

	Plowing.		Harrowi'g or disking	Listing in.	Planting.	Cultivat'n
	Fall.	Spring.				
Kentucky.....	1.5	1.5	4.8	....	6.1	5.6
Ohio.....	....	1.7	4.1	....	4.9	4.5
Indiana.....	....	1.9	4.4	....	6.7	5.6
Illinois.....	2.3	2.2	6.5	....	10.0	6.7
Iowa.....	2.6	2.3	10.2	6.7	10.4	9.3
Missouri.....	2.9	2.3	7.7	....	9.2	5.8
Kansas.....	....	2.1	8.3	6.9	6.3	3.8
Nebraska.....	....	2.6	8.8	4.9	10.5	7.9
Average.....	2.3	2.2	6.3	5.7	8.5	6.1

The figures for cultivation represent the acres per day per unit of labor at first cultivation. All of the crop was cultivated twice, practically all of it the third time, while 40.4 per cent received a fourth working, and 73 acres were cultivated the fifth time.

The total labor involved in the operations above noted is reduced to wage cost in the following statement:

	Plowing.	Harrowi'g or disking	Listing in.	Planting.	Cultivat'n	Tot. wage cost.
Kentucky.....	\$41.84	\$12.74	....	\$10.74	\$52.64	\$117.96
Ohio.....	44.61	18.74	....	13.71	76.54	153.60
Indiana.....	111.75	46.48	....	30.52	148.97	337.72
Illinois.....	163.30	53.04	....	35.83	173.72	425.89
Iowa.....	71.33	15.67	\$4.62	16.53	97.27	205.42
Missouri.....	45.65	12.59	....	13.76	61.52	133.52
Kansas.....	18.59	2.38	40.22	3.38	197.69	262.26
Nebraska.....	134.90	31.74	20.82	32.87	252.36	472.69
Total.....	\$631.97	\$193.38	\$65.66	\$157.34	\$1,060.71	\$2,109.06

This represents the total wage cost involved in performing these various classes of work included in this record. Adding to the total above found, the cost of labor maintenance while engaged in this work, and the cost of seed, we reach the total cash outlay from the beginning of plowing to the end of cultivation, exclusive of team maintenance, as follows:

	Acres.	Wage cost.	Labor maint'n'ce	Seed corn.	Total.	Per acre.
Kentucky.....	140	\$117.96	\$35.98	\$10.70	\$164.64	\$1.18
Ohio.....	126	153.60	64.05	7.78	225.43	1.79
Indiana.....	301	337.72	121.24	23.31	482.27	1.60
Illinois.....	487	425.89	152.90	32.04	610.83	1.25
Iowa.....	284	205.42	86.07	26.82	318.31	1.12
Missouri.....	200	133.52	48.60	10.74	192.86	.96
Kansas.....	351	262.26	102.02	18.12	382.40	1.09
Nebraska.....	743	472.69	197.59	40.31	710.59	.96
Total.....	2,632	\$2,109.06	\$808.45	\$169.82	\$3,087.33	\$1.17

A traveller should have a hog's nose, deer's legs and an ass's back

The wage cost and labor maintenance, in gathering and cribbing the crop, was as follows:

	Acres.	Wage cost.	Labor maintena'ce	Total.	Per acre.
Kentucky	140	\$77.46	\$23.63	\$101.09	\$0.72
Ohio.....	126	232.34	96.89	329.23	2.61
Indiana.....	301	474.20	170.24	644.44	2.14
Illinois.....	487	416.69	149.59	566.28	1.16
Iowa	284	174.54	73.13	247.67	.87
Missouri.....	200	112.00	40.77	152.77	.76
Kansas.....	351	204.53	79.56	284.09	.81
Nebraska.....	743	449.63	187.95	637.58	.86
Total.....	2,632	\$2,141.39	\$821.76	\$2,963.15	\$1.13

The data presented up to this point cover the gross cost of the crop, exclusive of cost of team maintenance. To reach the net cost it is necessary to deduct from this gross sum the value of the by-product secured, the fodder and pasture privilege. The value fixed for the fodder was the price at which it would have been sold in the field, with no further expense to the owner for hauling or delivery. The value of pasturage in the fields from which the crop was husked from the stalk is fixed at the amount for which this privilege could have been sold. The following statement shows the combined wage, seed, taxation and labor maintenance cost, the value of the fodder and pasturage, and the resulting net cost of the crop exclusive of team maintenance:

	Tot. cost labor, etc	Value of fodder.	Net cost.
Kentucky	\$279.83	\$75.00	\$204.83
Ohio.....	635.53	322.70	312.83
Indiana.....	1,282.96	443.30	839.66
Illinois.....	1,348.09	267.25	1,080.84
Iowa.....	677.53	114.80	562.73
Missouri.....	413.00	100.25	312.75
Kansas.....	731.04	144.50	586.54
Nebraska.....	1,497.17	96.95	1,400.22
Total.....	\$6,865.15	\$1,564.75	\$5,300.41

The figures presented in this showing are the results of exact records as returned by the growers of the crop under review. With this net cost it is possible to figure the cost per acre and the cost per bushel, "cost" here including all wages, labor maintenance, seed and taxation, but not including wear and tear of farm implements and cost of team maintenance, two items which must rest on personal estimate. The conclusions as to cost, so far as it is a matter of exact record, as determined by this investigation, are as follows:

	Acres.	Bushels.	Net cost.	Cost per acre.	Cost per bushel.
Kentucky.....	140	4,010	\$204.83	\$1.46	\$0.051
Ohio.....	126	6,375	312.83	2.48	.049
Indiana.....	301	14,999	839.66	2.79	.056
Illinois.....	487	27,284	1,080.84	2.22	.040
Iowa.....	284	14,973	562.73	1.98	.038
Missouri.....	200	6,414	312.75	1.56	.049
Kansas.....	351	12,030	586.54	1.67	.049
Nebraska.....	743	26,964	1,400.22	1.89	.052
Total.....	2,632	113,049	\$5,300.41	\$2.01	\$0.047

The proper allowance for wear and tear of farming machinery and for team maintenance is necessarily a matter of opinion. In order to present a showing of the total cost of growing this corn crop, it is assumed that a com-

Well done is better than well said.

plement of tools sufficient to cultivate 40 acres of corn can be purchased for \$85, and the annual wear and tear is placed at $12\frac{1}{2}$ per cent, or 26.6 cents per acre. If the cost of maintaining a team while actually engaged in work on the crop be placed at half the cost of maintaining a laborer while so engaged, it gives as cost of team maintenance 31.4 cents. With these two estimated items, the data heretofore presented show the average cost of producing this corn crop on 2632 acres in eight great corn states to have been:

COST OF PRODUCTION.

	Per acre.	Per bushel.
Taxation.....	\$0.278	\$0.006
Removing stalks.	.031	.001
Plowing, harrowing and planting.....	.549	.013
Seed corn.....	.064	.002
Cultivation.....	.559	.013
Gathering and cribbing.....	1.126	.026
Total from actual records.....	2.607	.061
Estimated team maintenance.....	.314	.007
Estimated depreciation in machinery.....	.266	.006
Gross cost.....	3.187	.074
Less value of fodder.....	.594	.014
Net cost.....	2.593	.060

The rate of yield on the fields, in this record, was 43 bushels, against an average for the whole country that year of 28 bushels. If it could be assumed that the cost per acre on this area was typical for the whole corn breadth of 1896, it would indicate an average cost per bushel for that crop, on the same basis, of 9.2 cents per bushel.

That corn can be grown at an actual cash outlay of 6 cents a bushel, even in such a year as 1896, and under the most favorable conditions, will prove a surprise to the best posted, yet these actual records kept by individual growers, on 2632 acres, show that it was, and against such a record mere estimates have little weight. The grievous error, in most of such estimates, is the underrating of the accomplishment of a day's labor and the assumption that wages are paid at the highest rate by the day.

The question of what the growers of this crop must have sold their corn at in order to make their farming pay, is another matter altogether. The wage cost, which is the greatest part of the cost in this record, covers only the time actually spent in working in the field; in other words, the actual cash outlay. If the farmer grows only corn he is necessarily idle for six months in the year, and his profit must be sufficient to cover this period when his labor is not productive. Adding to this wage cost a sum sufficient to allow him wages for time necessarily idle, the cost of the corn in this record would be increased to about 11 cents. If his investment, land, fences, buildings and farm implements, and necessarily horses, be reckoned at \$50 per acre, an allowance of six per cent on such capital would make a minimum selling price about 18 cents. It follows, therefore, that the selling price of this corn must have been not less than 18 cents, in order to give the producer a net profit of six per cent upon the capital which his thrift has accumulated.

In this light, while six cents per bushel represented the actual cash outlay on the crop under review, it could not be profitably sold at much less than three times that figure.

Love, smoke and a cough are hard to hide.

Oats.

In point of commercial importance only the northern hemisphere is a producer of oats. South of the equator this crop is found in temperate to cool climates, yet it does not figure at all in the world's movement. What is generally recognized as the world's crop of oats is 2500 to 3000 million bushels, or as much in bulk as the corn crop and somewhat exceeding wheat. The United States is the largest producer, but by no means enjoys a monopoly, the crop of Russia averaging much the same. Liberal yields are always expected in Germany, France, Austria, and the United Kingdom. While the United States produces in a full year more than any other country, Russia far surpasses it in exportable surplus, shipping annually, largely to Germany and the United Kingdom, 60 to 100 million bushels. South-eastern Europe is generally depended upon for a moderate to small surplus, and so with Scandinavia and Canada. The United Kingdom is the heaviest importer, although her own crop is liberal at some 200 million bushels. Other important buyers are France, Germany, and central and northern Europe generally. In our table showing oat crops of the world, the figures other than those for the United States are credited to the Corn Trade Year Book. An average taken of the five years' crops shows that of the the total world's supply, the United States produces 26 per cent, Russia 26 per cent, Germany 12 per cent, France 10 per cent, and the United Kingdom 7 per cent, the last three named being large buyers as well as liberal producers.

OAT CROPS OF THE WORLD.

(In millions of bushels.)

	1896.	1895.	1894.	1893.	1892.	Av. 5 yrs.	% of total
U. S.....	717	904	694	639	661	723	26.2
Algeria.....	8	7	5	3	3	5	0.2
Austria.....	186	195	194	168	186	186	6.7
Belgium.....	27	33	34	23	29	29	1.1
Bulgaria, etc.....	7	7	7	6	9	7	0.2
Canada.....	114	127	97	82	90	102	3.8
Denmark.....	46	44	43	31	46	42	1.5
France.....	301	313	301	205	268	275	10.0
Germany.....	370	359	359	294	324	341	12.4
Holland.....	19	18	15	16	14	16	0.5
Italy.....	26	22	20	21	20	21	0.9
Roumania.....	17	12	11	17	13	14	0.5
Russia.....	640	684	836	811	627	719	26.1
Sweden.....	65	81	81	66	67	72	2.6
U. K.....	194	207	226	200	199	205	7.4
Total.....	2,737	3,013	2,923	2,582	2,556	2,762	100.

THE OATS CROP OF THE UNITED STATES

Could easily be swelled to one billion bushels under proper encouragement. Our largest yield was in 1895, when it approximated 900 millions, followed the past two years with moderately liberal, but not bumper crops. The area devoted to oats is about 30 million acres, or materially less than that in wheat. But owing to the larger rate of yield per acre, 23 to 30 bushels, the measured bulk is very much greater than that of wheat. Considerable attention is given this crop in every state, although the yield in the south is relatively small. In recent years, Iowa has produced more than any other one state, followed closely by Illinois, while other leaders include Wisconsin, Minnesota, New York, Pennsylvania, Indiana, Ohio, Michigan; Nebraska, etc. The total

A miser's cheese is most wholesome.

farm value of the oats crop, according to the Department of Agriculture, is 130 to 230 million dollars annually. The crop of 1897 was a liberal one, with an average yield per acre of 27.8 bushels, the cereal doing especially well in Iowa, Illinois, Wisconsin, Nebraska, and other portions of the middle west.

OATS ACREAGE AND YIELD BY STATES.

[In round thousands.]

	Acres		Av. y'd		Bushels	
	1897	1896	1897	1896	1897	1896
N. J.,	—	325	—	34.0	—	10,050
N. Y.,	1,383	1,441	32.0	33.5	44,256	48,274
Pa.,	1,199	1,236	31.0	32.0	37,169	39,552
Tex.,	687	701	35.0	20.0	24,045	14,020
Ark.,	349	375	21.8	15.0	7,608	5,525
Tenn.,	472	524	25.0	20.0	11,800	10,480
W. Va.,	149	166	21.5	18.0	3,204	2,988
Ky.,	549	578	22.9	19.5	12,572	11,271
O.,	1,046	1,137	27.8	27.5	29,079	31,268
Mich.,	1,006	1,105	27.4	27.0	27,564	29,835
Ind.,	1,188	1,237	28.3	27.2	33,620	33,646
Ill.,	3,826	3,788	28.5	23.0	109,041	87,124
Wis.,	1,919	1,958	35.4	32.0	67,933	62,656
Minn.,	1,849	1,946	31.5	31.5	58,244	61,299
Ia.,	4,505	4,324	29.4	23.0	132,447	99,452
Mo.,	1,173	1,275	21.4	20.0	24,102	24,500
Kan.,	1,006	1,590	25.3	15.1	25,542	24,009
Neb.,	1,604	1,725	31.4	17.0	50,366	29,325
N. D.,	587	559	28.2	22.0	16,553	1,298
S. D.,	750	789	21.0	25.0	15,750	19,725
Cal.,	60	60	32.5	30.3	1,950	1,818
Ore.,	223	235	36.0	21.0	8,029	4,935
Wash.,	95	95	40.0	20.0	3,800	1,900
Other,	3,566	3,274	19.2	19.0	68,467	62,606
Tot,	29,191	30,443	27.8	23.6	814,051	717,256

OATS PRICES AT CHICAGO. NO. 2 CASH.

In cents per bushel.

	Jan.	May.	July.	Sept.	Dec.
1897....	16a17	17a19	17a18	19a21	21a24
1896....	17a19	18a20	15a19	14a17	16a19
1895....	27a29	27a31	22a25	18a21	16a18
1894....	26a29	32a36	29a41	27a31	28a29
1893....	30a32	29a32	22a30	23a29	27a29
1892....	28a30	28a34	30a34	31a34	29a31
1891....	41a44	45a54	27a45	26a30	31a34
1890....	20a21	24a30	27a35	44a51	41a44
1889....	24a25	21a24	22a23	19a20	20a21
1888....	30a32	32a38	28a33	23a25	25a27
1887....	25a27	25a28	24a27	23a27	28a31
1886....	28a36	26a30	27a32	24a26	25a27
1885....	25a29	31a36	26a33	24a27	27a29
1884....	31a34	31a34	28a33	24a26	23a26
1883....	35a40	38a43	27a37	25a29	30a36
1882....	42a45	48a55	52a62	30a36	34a42
1881....	30a32	36a40	37a45	36a46	43a48
1880....	32a36	29a34	23a26	27a35	29a33
1879....	19a20	24a31	25a37	21a27	33a37
1875....	52a53	57a65	48a56	34a40	29a31
1873....	24a26	30a34	27a30	26a31	34a41
1869....	45a50	56a63	57a71	42a46	40a45

EXPORT TRADE AND DOMESTIC MARKETS.

Low prices for a long time past have been favorable to extensive foreign purchases, our exports in the fiscal year 1897 being 35 million bushels, or the largest on record. A year earlier the exports were 13 millions, while following the short crop of 1894, with attendant high prices, next to nothing was sent abroad. See detailed export movement for a series of years in another table. Our foreign trade is very susceptible to prices, a low level here permitting free shipments, while any general advance shuts off the business, as England and other importing countries can secure needed supplies from Russia and southeastern Europe.

Rye.

One of the least appreciated of the cereal crops of this country is rye. Seldom exceeding 30 million bushels, this amount forms an insignificant part of the world's rye crop, which in a full year is over 1400 million bushels, with an average of recent years of 1315 millions. Russia raises more than all the rest of the world, a full crop there exceeding 800 million bushels, or a quarter to a third more than the total wheat crop of the United States, and thirty times as much as our rye crop. After Russia and Germany, the largest grower of rye is Austro-Hungary, followed by France, while even little Belgium in a full year will produce as much as this country. Russia consumes most of her rye, this being a staple breadstuff, yet has sufficient surplus to export some 50 million bushels in a full year, largely to Germany, which is the best buyer for the world's crop. Southeastern Europe always exports some rye, and occasionally Belgium and France. Leading importers, after Germany, are Holland and Scandinavia.

WORLD'S RYE CROP, MILLIONS OF BUSHEL.

(Figures mostly from Corn Trade Year Book.)

	1896.	1895.	1894.	1893.	1892.	Av 5 yrs	% of total
United States.....	24	27	27	26	30	27	2.0
Austro-Hungary.....	118	104	129	123	126	120	9.1
Belgium.....	29	20	19	20	21	20	1.5
Bulgaria & Roumelia.....	5	7	6	6	7	6	0.5
Denmark.....	18	17	16	19	19	18	1.4
France.....	80	81	85	73	76	77	5.9
Germany.....	244	242	260	312	252	262	20.0
Holland.....	11	10	10	10	10	10	0.8
Italy.....	4	4	4	4	4	4	0.3
Roumania.....	12	9	6	7	4	8	0.6
*Russia.....	671	705	840	755	715	737	56.3
Sweden.....	23	20	18	24	21	21	1.6
Total.....	1,239	1,246	1,420	1,379	1,285	1,314	100.

* Sixty governments, according to agricultural ministry. *American Agriculturist* finds that, including Poland, the total rye crop of Russia in 1896 was 734,000,000 bushels. In the calendar year 1890, Russia exported 44,000,000 bushels of rye, in 1891 (up to Aug. 15, when exports were prohibited) 39,000,000. After Aug. 7, 1892, when prohibition was suspended, 7,200,000 bushels; in 1893, 19,000,000; in 1894, 49,000,000; in 1895, 54,000,000; in 1896, 47,000,000, and in 1897 to Oct. 1 were about 30,000,000.

THE UNITED STATES CROP OF RYE

Though small, is apparently more than ample, one year with another. While it is only two per cent of the world's crop, there is always a surplus, and exports are fair when price is low enough. Americans are not a rye-eating people, yet moderate quantities are thus utilized, while a considerable portion of the crop goes to distillers. There is usually a close sympathy between the price of wheat and the price of rye, although the market for the last named is very sluggish most of the time. The area in rye is around two million acres, occasionally quite a little more than that, and the crop 24 to 33 million bushels. Most attention is given this cereal in Wisconsin, Pennsylvania, New York and Michigan. New England long since went out of rye growing, except in a small way, and the south and Pacific coast accord it little attention. Our export trade in rye, as shown in the table of exports of principal farm crops found on another page, fluctuates greatly, from next to nothing to 12 million bushels. The foreign movement is dependent not only upon the domestic price, but upon the situation abroad, occasional years of continental crop shortages resulting in good purchases here.

MONTHLY RANGE OF CASH (NO. 2) RYE AT CHICAGO.

(In cents per bushel.)

	Jan.	May.	July.	Sept.	Dec.
1897	36a38	32a36	33a40	47a56	45a48
1896	32a41	33a37	29a32	30a37	37a43
1895	48a51	62a67	46a56	37a41	32a36
1894	44a46	44a49	40a48	46a48	48a50
1893	50a58	51a60	43a51	40a47	45a48
1892	78a87	70a79	65a75	55a58	46a52
1891	61a72	83a92	66a77	82a91	86a92
1890	43a45	49a54	47a54	58a63	61a69
1888	61a64	63a70	44a53	50a55	50a52
1885	52a64	68a73	57a61	56a60	58a61
1882	95a96	77a83	66a75	57a67	57a59

When passion ends, repentance begins.

Barley.

Taking the world at large, a full yield of barley is about as bulky in measured bushels as an average oats crop of the United States. Central Europe and Russia devote liberal areas to barley culture, and the cereal is accorded considerable favor in the United Kingdom, Scandinavia, and France. Other European countries grow more or less barley and some attention is given the crop, in a crude way, in northern Africa, as shown in subjoined table, compiled mostly from figures in Corn Trade Year Book. In the western hemisphere the combined yield of the United States and Canada is a seventh to a tenth of the world's total. Russia and southeastern Europe are the chief exporting countries, although the United States, particularly the Pacific coast, ships fairly liberal quantities, and Canada also has a small surplus. The chief buyer is the United Kingdom, which takes annually 40 to 70 million bushels, Germany following with 25 to 50 millions, while Belgium, Holland, France, Norway, etc., are always counted among the buyers.

THE BARLEY CROPS OF THE WORLD.

[In millions of bushels.]

	1896	1895	1894	1893	1892	Av. for 5 years	% of total		1896	1895	1894	1893	1892	Av. for 5 years	% of total
U. S.	70	87	61	70	72	72	9.8	France	48	47	47	34	46	44	6.0
Algeria	30	34	36	32	34	33	4.5	Germany	116	106	107	110	106	109	14.8
Tunis	4	8	9	7	7	7	0.9	Holland	5	5	4	5	5	5	0.7
Austria	106	106	118	114	111	111	15.1	Italy	8	7	8	7	7	7	0.9
Belgium	3	3	4	3	4	3	0.4	Roumania .	30	22	17	34	20	23	3.1
Bulgaria ...	20	16	12	16	13	15	2.0	Russia	162	170	192	224	157	181	24.6
Canada	16	18	14	12	15	15	2.0	Sweden	14	15	14	13	14	14	1.9
Denmark ..	24	22	22	18	27	23	3.1	U Kingdom	77	75	78	66	77	75	10.2
								Total	733	741	743	765	715	739	100.0

THE DOMESTIC AREA DEVOTED TO BARLEY.

Three million to 3,800,000 acres, or thereabout, in recent years, yields a moderate crop of 60 to 90 million bushels, found chiefly in a few states, California leading, followed in importance by Minnesota, Iowa, Wisconsin, New York and the Dakotas. A large part of the Pacific coast crop is exported, commanding higher prices than the product of the central states, owing to superior quality. What is known as the northwestern crop, marketed largely in Milwaukee and Chicago, is sold almost exclusively by sample, according to merit. There is a nominal inspection and grading, but in recent years speculative trading has decreased to insignificant proportions, and most of the grain sells direct to maltsters, if good enough for their use, low grades going for feed purposes, often purchased by dealers who subsequently mix same with oats. Exports of barley from the United States make a moderate showing, one to eight million bushels annually, and are given in considerable detail on another page.

RANGE OF BARLEY PRICES AT CHICAGO.

(In cents per bushel.)

	January.		May.		September.		December.	
	Malting.	Feed.	Malting.	Feed.	Malting.	Feed.	Malting.	Feed.
1897	30a36	23a26	30a40	23a27	32a40	26a28	32a45	25a28
1896	30a40	22a28	31a40	25a30	30a36	20a28	33a38	22a25
1895	51a56	.....	50a52	46a50	40a45	25a35	33a40	22a27
1894	43a60	35a40	53a60	45a50	53a57	48a52	55a55	46a50
1893	55a70	30a40	53a66	38a50	42a56	32a40	40a55	30a40
1892	52a63	31a40	48a60	30a45	53a68	35a45	55a70	33a46
1891	60a75	50a55	70a77	65a68	46a67	30a40	47a60	35a40

Grass Seeds.

The north central states produce most of the timothy and clover seed available for domestic and foreign markets. Relatively little of either description is threshed in New England, the middle states east of Ohio, the south, or west of the Missouri river. The proportion of the grass crops set aside for seed depends somewhat upon the condition of the seed markets. But taking a long series of years, certain states which originally secured large crops now direct their attention to other things. This is particularly true of clover. In 1860, Pennsylvania yielded the most clover seed of any one state, while 30 years later, in the federal census of 1890, it was obliged to take 9th place, with Ohio first. Before the war New York was one of the great clover seed states, standing third in production, while in 1890 it had dropped to 13th place. Ohio has held supremacy two decades, Indiana and Michigan following with very rapid growth the last 25 years, and Illinois and Iowa both highly important states in making up the commercial surplus. The territory north of the Ohio river and extending west to the Missouri river forms the clover and timothy seed belt. During the past few years increased attention has been given crimson clover in a few states. The crop of alfalfa, or "lucerne," as it is called in Europe, is grown almost exclusively in the semi-arid belt of the west and the rich valleys of the Rocky mountain and Pacific coast country. Hungarian and the millets are regarded as catch crops, and only when there is a prospective scarcity of clover and timothy are any considerable quantities of these grasses raised and threshed for seed.

FOREIGN OUTLET HIGHLY IMPORTANT.

Farmers who make a specialty of grass seed cannot take too much pains with quality and purity. It is highly important to keep the crop free from weed seeds, in order to find favor in the markets. After home requirements are made up there is always an export surplus of both clover and timothy, and the price of every bushel of seed grown depends largely upon the character of the foreign demand. Germany and the United Kingdom are the largest European buyers, although there are some exports direct to France and other parts of the continent. Our trade with Canada is perhaps more important than all, especially so far as timothy is concerned, large quantities being sent to this northern neighbor. The heaviest trade in clover seed ever enjoyed was that of the season of 1893-'94, when foreigners took 45 million lbs, at an average value of 10c; exports in the fiscal year 1897 were 13 million lbs, at an average value of a little less than eight cents. Last year's foreign trade in timothy seed was phenomenal; under the very low prices ruling the average value of all seed exported was \$1.53 per bushel.

EXPORTS OF GRASS SEEDS.

Yr. ended June 30.	Clover.			Timothy.		
	Pounds.	Total value.	Av. val.	Pounds.	Total value.	Av. val.
1897	13,042,994	\$1,003,157	7.7c	16,733,993	\$574,457	3.4c
1896	5,539,787	437,493	7.8	11,894,536	518,755	4.3
1895	22,900,672	2,124,997	9.3	4,939,237	277,160	5.6
1894	45,418,663	4,540,851	10.0	10,155,867	449,207	4.4
1893	8,189,553	988,029	12.1	7,077,131	504,937	7.1
1892	19,532,411	1,636,671	8.4	10,318,074	381,651	3.7
1891	20,773,884	1,575,039	7.6	8,757,788	370,151	4.2
1890	26,500,578	1,762,034	6.6	11,051,053	473,770	4.2
1889	34,253,137	3,110,583	9.1	10,200,673	451,728	4.4
1888	13,357,899	1,009,695	7.5	2,097,197	117,677	5.6
1887	7,932,390	630,850	7.9	6,500,004	281,048	4.3
1886	2,652,433	264,882	9.9	4,023,937	175,754	4.3
1885	17,653,112	1,525,283	8.6	3,830,737	157,444	4.1

The largest primary market for clover seed is Toledo. Quotations in that city are made per bushel, and in Chicago and some other leading markets per 100 lbs. Clover seed prices this winter have ruled among the lowest on record, owing to the indifferent export demand up to New Year's for our liberal surplus from last season's crop. Timothy prices are also exceptionally low.

RANGE OF PRICES OF GRASS SEEDS AT CHICAGO.

(Per 100 pounds for prime quality.)

	Clover.			Timothy.			Hungarian.		German m'let	
	Jan. 1.	Mar. 1.	Oct. 1.	Jan. 1.	Mar. 1.	Sept. 1.	Mar. 1.	Oct. 1.	Mar. 1.	Oct. 1.
1897	8.25	7.50	5.30	2.70	2.65	2.77	.60	.65	.75	.80
1896	7.25	7.40	8.25	3.60	3.60	2.55	.80	.60	.85	.60
1895	9.10	9.00	7.00	5.52	5.80	4.35	1.65	.80	1.65	.80
1894	10.75	8.85	8.50	4.35	4.10	5.20	1.90	1.25	1.00	1.25
1893	13.33	13.12	9.25	4.50	4.44	3.20	2.10	1.10	1.60	—
1892	9.16	10.00	10.25	2.73	2.80	3.44	1.10	1.20	1.30	1.20
1891	7.00	7.46	7.16	2.77	2.82	2.77	1.10	.80	1.50	1.00
1890	5.66	5.33	6.83	2.64	2.71	2.95	.70	.90	.80	.80

EXPORTS PRINCIPAL FARM CROPS.

In round millions.

Year ended June 30.	Flour, barrels.	Wheat, bushels.	Corn, bushels.	Oats, bushels.	Rye, bushels.	Barley, bushels.	Clover seed, pounds.	Timothy seed, pounds.	Cotton, bales.	Apples, barrels.	Hay, tons.	Hops, pounds.	Oil cake and meal, pounds.	Cotton seed, pounds.	Tobacco leaf, pounds.
1897	15	80	177	35	9	19	13	17	6	1,495a	62a	11	1,056	27	315
1896	15	61	100	13	1	8	6	12	5	360a	59a	17	798	27	288
1895	15	76	28	1	—	2	23	5	7	819a	47a	18	734	11	294
1894	17	88	65	6	—	5	45	10	5	79a	54a	17	745	5	269
1893	17	117	46	2	1	3	8	7	4	408a	33a	11	802	5	248
1892	15	157	75	9	12	3	20	10	6	939a	35a	13	826	12	241
1891	11	55	31	1	—	1	21	9	6	135a	28a	9	633	10	237
1890	12	54	102	14	2	1	27	11	5	454a	36a	8	712	8	244
1889	9	46	70	1	—	1	34	10	5	942a	22a	13	588	11	212
1888	12	66	24	—	—	1	13	2	5	490a	18a	7	563	6	249
1887	12	102	40	—	—	1	8	7	4	592a	14a	—	622	11	294

a In thousands.

IMPORTS GRAIN, COTTON AND OTHER FIELD CROPS.

(In thousands.)

Y'r en'd Jun 30	Flour, barrels.	Wheat, bushels.	Corn, bushels.	Oats, bushels.	Rye, bushels.	Barley, bushels.	Cotton, bales.	Flax tow, tons	Hemp tow, tons	Hay, tons.	Barley malt, bu.	Flax s'd bushels.	Tobacco leaf, lbs.
1897	2	1,534	6	46	a	1,272	104	9	5	120	11	105	13,805
1896	1	2,110	4	48	a	837	111	8	8	303	6	755	32,883
1895	2	1,430	17	308	13	2,117	99	7	7	202	11	4,166	26,668
1894	a	1,181	2	8	a	791	55	4	2	87	5	593	19,663
1893	a	966	2	21	9	1,970	87	7	5	104	4	112	28,110
1892	a	2,460	15	20	84	3,146	57	8	5	80	5	285	21,989
1891	8	546	2	10	141	5,079	42	6	11	58	123	1,516	23,061
1890	1	157	2	21	198	11,333	17	8	37	125	218	2,391	28,721
1889	1	131	2	22	a	11,368	16	8	56	105	150	3,259	20,107
1888	3	583	37	68	a	10,831	11	6	48	100	217	1,584	18,600
1887	1	278	31	87	18	10,356	8	7	33	78	291	415	17,519

a Less than 1000. b Expressed in bales of 500 pounds each.

A man in love is no judge of beauty.

COMPARATIVE WORLD'S GRAIN PRICES, PER BUSHEL.

(On Sept. 1 in years named. Contract grade, in cents.)

	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Wheat:							
Chicago.....	93.87	60.62	61.75	55.25	63.62	73.75	97.5
New York.....	97.5	65.25	66.	57.62	70.	8.5	—
London, Cal.....	114	80.25	73.5	71.25	84.	101.	137.
London, Russian.....	107	78.	70.5	64.5	81.	93.	131.
London, Calcutta.....	—	—	68.	66.75	81.75	91.5	113.5
Paris.....	151	96.75	97.5	92.	109.	116.5	144.
Berlin.....	—	96.75	90.	89.25	98.5	99.5	154.
Budapesth.....	135	73.25	69.	67.25	110.5	81.25	84.75
* Flour:							
London (American patent)....	744	516	528	528	600	654	816
London (American bakers)....	660	444	444	360	408	504	720
London (English patent).....	—	552	528	564	624	696	864
Paris.....	1100	624	648	612	686	784	970
Corn:							
Chicago.....	31.25	20.75	36.62	57.75	37.87	48.75	65.25
New York.....	37.25	26.67	42.5	63.25	45.5	60.	75.5
Liverpool (American).....	46.	38.	50.4	69.3	53.2	63.7	84.
London (Danubian).....	53.25	39.9	54.6	56.7	53.2	61.6	85.4
Rye:							
Chicago.....	50.5	30.5	40.	46.5	41.	56.5	88.
New York.....	54.5	39.	52.	53.	56.	63.	100.
Berlin.....	—	75.75	75.	77.5	85.25	93.25	156.
Amsterdam.....	—	45.75	50.	51.75	60.	67.	126.5

* Per 280 pounds.

EXPORTS DOMESTIC ANIMALS AND MEAT PRODUCTS FROM U. S.

Stated in round millions.

Year ended Jan. 30.	Cattle.	Hogs.	Horses and mules.	Sheep.	Canned beef.	Fresh beef	Salted beef.	Tallow.	Bacon.	Hams.	Pickled pork.	Lard.	Imitation butter.	Oleo oil.	Butter.	Cheese.	Eggs.
	No a	No a	No a	No a	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	doz. a
1897	392	29	40	244	54	290	69	75	500	165	67	568	5	114	31	51	1,300
1896	372	21	31	492	64	225	71	53	425	129	69	510	6	103	19	37	328
1895	332	7	16	406	64	191	62	26	453	105	58	475	10	78	6	60	151
1894	359	2	7	132	56	194	63	55	417	87	64	448	4	123	12	74	163
1893	287	27	4	37	79	206	58	62	392	82	52	366	3	114	9	81	143
1892	395	32	5	47	87	221	70	90	508	77	80	460	2	92	15	82	183
1891	375	96	5	61	110	194	90	112	515	84	81	498	2	80	15	82	363
1890	395	91	7	68	83	173	98	113	532	77	80	471	3	68	30	95	381
1889	206	45	7	129	51	138	55	78	357	43	64	318	2	28	16	85	549
1888	140	24	5	144	40	93	49	92	331	44	59	298	2	30	10	88	420
1887	106	75	3	122	43	84	36	63	364	56	86	322	1	46	13	81	373

a Expressed in thousands.

Weights of Varieties of Apples per Bushel. (Bailey.)

The following varieties, just from the trees in October, gave the following weights:

Pounds.	Pounds.	Pounds.	Pounds.
Baldwin, 50	Fallawater, 48	Rambo, 50	Swaar, 51
Belmont, 50	Golden Russett, 53	R. I. Greening, 52	Sweet Bough, 39
Ben Davis, 47	Lawver, 47	Roxbury Russett, 50	Talman Sweet, 48
Bunker Hill, 49	Nickajack, 51	Rubicon, 46	Tompkins King, 44
Cabashae, 57	Northern Spy, 46	Stark, 56	Yellow Bellefleur, 46
Esopus Spitzenb'g, 44	Pennock, 47		

Most fools think they are only ignorant.

Foreign Market for American Produce.

Where it Is and Who Our Competitors Are in These Markets.

Agricultural products, either in their raw state or manufactured into other shapes, form a very large part of the foreign trade enjoyed by the United States. Of our total exports, about 75 per cent are from the farms and of the remaining 25 per cent, four-fifths consist of domestic manufactures of materials which are largely furnished by American farms. As has been well said, the greatest need of the American farmer is more markets for crops and not more crops for markets. The demand for American produce in foreign lands is already large, but it may be very much increased and intensified. The United Kingdom leads all other countries in exchanges with the United States and forms the best customer for our farm surplus of practically all descriptions. So far as that is concerned, that country is the world's market for excess over home requirements. Our trade with such other consuming nations as Germany, France, Belgium, Holland, etc, is important but capable of great development in various lines.

Great Britain and Ireland.

Popularly known as the United Kingdom, England, Scotland, and Ireland form a group of countries under one general government, constituting the world's greatest market for farm produce. With a population of 40,000,000 and upward, largely industrial, the production of farm crops is very much below the annual requirements. Enormous quantities are purchased in other countries, the United States enjoying a very liberal share of this business. The area of the United Kingdom is 120,979 square miles. This is just about equal to the combined area of Mass, N Y, N J, Pa, Del, and Md, which have less than half the population. All the arable land is under a high state of cultivation and the rate of yield is large. The total area under all kinds of crops, including grass, remains nearly stationary at about 48,000,000 acres. Among the principal crops are wheat, with an acreage of 1,938,956 in 1897, barley 2,213,529, oats 4,226,231, rye 389,621, beans 230,429, peas 191,326, potatoes 1,194,194, turnips 2,150,289, grass under rotation 6,152,798, permanent pasture 27,924,710 acres, special crops scattered. The wheat crop of Great Britain is 60 to 75 million bushels annually, barley very much the same, oats 150 to 200, beans and peas together 10 to 18 million bushels, hay 9 to 15 million tons, potatoes 200 to 260 million bushels. The number of horses in the United Kingdom in 1897 was officially reported at 2,070,000, milch cows 3,984,000, other cattle 7,020,000, sheep 30,567,000, swine 3,683,000.

The import requirements of the United Kingdom have increased steadily for many years past. In the early fifties imports of wheat for consumption averaged annually 35 million bushels, increasing to 80 millions in the seventies, fully doubling 20 years later, and now approximating 200 million bushels annually, this latter figure representing the amount required to make up the deficiency over and above the British crop of perhaps 60 millions. England raises no corn, and buys annually 60 to 80 million bushels, chiefly in the United States. Her annual imports of barley are 40 to 70 million bushels, oats some 50 million bushels, chiefly in Russia and the United States. Barley is secured mostly in Russia and southeastern Europe, with moderate quantities

from the United States, including the Pacific coast. Russia, India, Argentina and the United States furnish the flaxseed.

By far the greater part of England's wheat and flour purchases are made in the United States, although every surplus country in the world aims to secure a part of the business. Second in importance is Russia, and considerable quantities in the aggregate are also bought in Argentina, Canada, India, Chile, and southeastern Europe. India and Australia are less important as competitors than in former years, while Argentina's surplus for shipment to England is variable, but trending greater one year with another, and is expected to be permanently large.

AS A MARKET FOR MEATS AND PROVISIONS

generally, including butter and cheese, the importance of the United Kingdom can scarcely be over-estimated. The larger part of our exports of beef and pork product and mutton go to the United Kingdom, where they are esteemed with the highest regard. Our shipments of live beef cattle are steadily increasing and are all slaughtered immediately upon being landed. Our exports of dressed and preserved meats and dressed mutton are equally important and encouraging. Our export trade in butter and cheese is far less satisfactory but shows improvement over a few years ago. Canada secures most of the English cheese trade; purchases of butter are made very largely in Denmark, Sweden, France and Holland, together with apparently increasing quantities from Australasia. Enormous numbers of eggs are purchased in France, Germany, Belgium, Denmark and Russia, with fair quantities from Canada, and practically none from the United States. Within the past few years the shipments of apples from the United States and Canada to the United Kingdom have grown to important proportions, our fine fruit meeting with excellent reception when properly selected, barrelled and marketed. Other ripe fruits if capable of standing the journey will sell there and so with dried and canned goods. Annual imports of 15,000 to 25,000 horses were formerly secured largely from the Continent, but in the past few years the United States and Canada have taken a good part of this trade. Moderate quantities of hay and potatoes are imported, but freights are against business of this character with the United States.

IMPORTS OF GRAIN AND COTTON INTO UNITED KINGDOM. (Stated in round millions.)

Calendar Year.	Wheat. Cwts.	Flour. Cwts.	Barley. Cwts.	Oats. Cwts.	Corn. Cwts.	Rye. Cwts.	Peas. Cwts.	Beans. Cwts.	Cotton. Cwts.
1897 <i>a</i>	58	16	17	15	50	—	3	3	12
1896	70	21	22	18	52	—	3	3	16
1895	82	18	24	16	34	1.0	2	4	16
1894	70	19	31	15	35	1.0	2	5	16
1893	65	20	23	14	33	.7	2	4	13
1892	65	22	14	16	35	.6	3	4	16
1891	66	17	17	17	27	.5	2	4	18
1890	60	16	17	13	43	.6	2	3	16
1889	59	15	17	16	36	.6	2	4	17
1888	57	17	21	19	25	1.3	2	3	15
1887	56	18	14	14	31	.8	3	2	16
1886	47	15	14	13	31	.3	2	3	15
1885	61	16	15	13	32	.3	2	4	13
1884	47	15	13	13	25	.2	2	4	16
1883	64	16	16	15	32	.2	2	4	15
1882	64	13	16	14	18	.3	2	2	16
1881	57	11	10	10	33	.2	2	2	15

a Eleven months.

IMPORTS OF ANIMALS AND MEAT INTO UNITED KINGDOM.

(Stated in round thousands.)

Calendar Year.	Cattle. No.	Sheep. No.	Bacon and hams. Cwts.	Beef, fresh. Cwts.	Beef, salted. Cwts.	Butter. Cwts.	Margarine. Cwts.	Cheese. Cwts.
1897 <i>a</i>	575	570	6,171	2,791	162	2,951	853	2,399
1896	562	770	6,009	2,660	247	3,038	926	2,245
1895	416	1,065	5,353	2,191	220	2,826	940	2,134
1894	475	485	4,819	2,104	242	2,575	1,109	2,266
1893	340	63	4,187	1,808	201	2,327	1,300	2,077
1892	502	79	5,135	2,080	275	2,183	1,305	2,233
1891	507	345	4,715	1,921	248	2,136	1,235	2,041
1890	643	358	5,000	1,855	275	2,028	1,080	2,144
1889	555	678	4,484	1,386	262	1,928	1,242	1,908
1888	377	956	3,594	837	227	1,671	1,140	1,918
1887	296	971	3,928	656	218	1,513	1,276	1,837
1886	320	1,039	4,211	807	191	1,544	888	1,735
1885	373	751	4,058	903	239	2,401	...	1,834
1884	426	945	3,418	878	212	2,475	...	1,927
1883	475	1,116	3,696	805	239	2,334	...	1,800
1882	344	1,124	2,904	464	228	2,170	...	1,695
1881	319	935	4,627	817	251	2,047	...	1,840

a Eleven months. *b* Includes "margarine."

For many years the United Kingdom has been the most important world's buyer of cotton. As long ago as 1820 this amounted to 150 million pounds, increasing to about 2000 millions in each of the last few years, most of it worked up into cotton goods, but some re-exported to the Continent; naturally the United States secures most of this business, Egypt supplying a moderate proportion. England's imports of wool, enormous in the aggregate, are chiefly from Australia, South Africa and Argentina. Much more leaf tobacco is purchased in the United States than in all other tobacco-growing countries combined.

The German Empire

has an area of 208,670 square miles, a population in 1890 of 49,428,470, an average per square mile of 236.7. It is about one-third larger than California and three times as large as Missouri. The average annual area under crops includes 15,000,000 acres in rye, 14,600,000 acres in meadows, 9,700,000 acres in oats, 7,500,000 acres potatoes, 5,000,000 acres in wheat, 4,000,000 acres in barley, 100,000 acres in hops, etc. The potato crop ranges at 800 to 1200 million bu, rye 250 to 300 millions, wheat 100 to 110 million bu. The census of farm animals in recent years shows a nearly fixed number of horses, approximating 3,500,000 head, cattle 17,000,000. Sheep decreased from 25,000,000 in '73 to 13,600,000 in '93, while swine increased from 7,000,000 in '73 to 12,000,000 in '92. The tariff on foreign goods, including agricultural products, contains a long list obliged to pay protective duties, with a tendency rather toward a further increase. Jealousy of the German farmers because of the competition of American and other foreign products has resulted in the establishment and maintenance of unjust discrimination, particularly against our meats and meat products.

Germany annually imports wheat to the extent of 36,000,000 bu and upward, chiefly from the United States, Russia, Argentina and Roumania, also buying relatively small quantities of flour, mostly in Austro-Hungary. Germany imports largely of rye, chiefly from Russia.

A week behind is a month behind.

Annual imports of corn, chiefly from the United States, are 24 to 33,000,000 bu, and oats 10 to 35,000,000 bu, governed by the size of the German crop. Comparatively small quantities of potatoes filter into Germany from adjoining countries. In these leading farm crops, it will thus be seen that the United States furnishes a fair proportion of Germany's requirements. Our exports of corn to that country are increasing in an encouraging manner, and when the home prices are low we can also supply them with considerable quantities of wheat, rye and oats. We find in Germany a fairly liberal buyer of grass seeds, notably clover, taking annually some 25,000 tons, two-fifths of this from Austria and one-fifth from the United States. Annual purchases of timothy seed are some 7000 tons, much of it from the United States direct and by the way of the United Kingdom.

OTHER IMPORTANT ARTICLES FROM AMERICAN FARMS

imported into Germany include cotton, fresh and dried fruits, dairy products and horses. No figures are available to show the exact quantity of American apples going into Germany, but it is liberal in the aggregate and increasing annually, the one port of Hamburg receiving 117,000 bbls in in the season of 1896-'97. The last few years Germany has been buying fresh fruits of all descriptions to the extent of about \$4,000,000 annually, and dried fruits nearly \$3,000,000, mostly from Austria and other parts of southeastern Europe, but taking fair quantities from the United States. We send practically no cheese to Germany yet that country pays \$3,000,000 annually for the product, almost exclusively to Switzerland, and the Netherlands, yearly purchases approximating 9000 tons. There is much of possibility in the future of exporting American horses to Germany, although this is still a question of development. In 1894, the latest year for which figures are available, Germany imported 85,321 horses, with a value of over \$15,000,000, an average of \$180 per head. Of the total number received 19,000 were credited to Belgium, no doubt many of these being really American horses landed primarily at such Belgian ports as Antwerp and subsequently shipped across into Germany. Russia is the biggest shipper of horses to Germany, and Austria, Denmark and France are all exporters.

An enormous buyer of raw cotton for use in the spinning industry, Germany's purchases in the United States are very large in the aggregate and most important, Germany's cotton bill annually exceeding \$50,000,000. In addition to raw cotton we ship enormous quantities of cottonseed oil and cake to that country. Out of 29,000 tons cotton oil purchased in all countries in '94, 15,000 tons were from the United States, and nearly 11,000 from the United Kingdom, no doubt a part of the latter being really a part of the product of our own southern plantations. Germany's imports of cotton oil cake are approximately 340,000 tons annually, the United States supplying a quarter to a third of this direct, and liberal quantities by way of French and Dutch ports, Russia also being a large shipper of this by-product.

In spite of the efforts to exclude or restrict the importation of American animals and meat product, large quantities are bought in this country. The German food laws are very stringent, and if our products were adulterated or otherwise injured the government would long before this have prohibited their sale. There is also some objection to American pork because it is too fat, the German trade requiring

Big crops come by work, not by talk.

a hard, solid, dry meat. This is especially so in the case of cured meats. Including live stock and animal products, Germany buys in foreign countries annually to the extent of \$70,000,000 to \$80,000,000. So far as animal products are concerned, including such items as lard, dressed beef, etc, the United States supplies 50 to 70 per cent of all entering Germany, but only a small per cent of the live animals, these being secured chiefly from Austria, Denmark and the Netherlands. What is wanted more than any other one thing, is the removal of unjust embargoes placed upon American products by the German government. Perhaps scarcely less important is the proper catering to German tastes and trade requirements. If bacon is wanted with a "streak of fat and a streak of lean," our American farmers ought to furnish a hog which will produce this. If they demand evaporated fruits dried on wooden instead of zinc frames, these claims should be recognized; and happily, real progress is being made in this direction. The standard of value in Germany is gold, with silver a legal tender only to the amount of 20 marks. A mark is 100 pfennige and is of the value of 23.8c.

Although a great agricultural country, Germany is obliged to import largely of cereals and other feedstuffs as above noted. The table, showing Germany's home crops and grain imports for a series of years, indicates what an excellent market it is for farm products. Russia supplies Germany with the bulk of her purchases of wheat and rye, although liberal quantities in the aggregate are secured from the United States, Roumania and Argentina. Up to '93 most of the barley came from Austria, but since that year Russia leads, while recently the United States is increasing her trade with Germany. Of all the corn imported, about half is bought in the United States, the remainder from Argentina and eastern Europe. Germany is an important purchaser of world's crops, buying wherever her advantage lies.

GERMANY'S GRAIN CROP AND IMPORTATIONS.

(In round millions of bushels.)

	Wheat.		Oats.		Rye.		Barley.		Corn.
	Crop.	Imp'ts.	Crop.	Imp'ts.	Crop.	Imp'ts.	Crop.	Imp'ts.	Imp'ts.
1896.....	110	62	370	35	244	38	116	48	33
1895.....	103	50	363	17	260	36	106	43	13
1894.....	111	43	362	28	278	24	107	51	23
1893.....	110	26	224	17	294	8	110	40	30
1892.....	118	48	329	62	269	20	106	27	29

Belgium.

The average annual wheat crop is some 16 million bushels, rye 16 to 17, oats 27, barley 3½, maslin 1½ millions. Flax is an important crop, with 100,000 acres or more under it, the fiber produced annually exceeding \$12,000,000 in value. Other important crops are forage and fodder grasses and plants and sugar beets. The poultry industry occupies a prominent place in Belgium. It is estimated that the value of the annual product of eggs and table poultry is not far from \$12,000,000, yet Belgium does not produce enough eggs for her own consumption. A large part of the exports of eggs credited to Belgium are in transit from northern Italy and Germany. Belgium had in 1893 no less than 121 beet sugar factories, an average of one for every 52,000 inhabitants.

Pork is almost the only meat exported, chiefly to England and France. Live cattle are imported almost exclusively from Holland, and

Better half the land twice as good.

sheep from Germany and Holland. Belgium exports heavy draft horses, and on the other hand imports carriage and saddle animals, which sell all the way up to \$500 and \$600 each. Horses from the United States are shown much favor, and our trade is encouraging. In 1893, Belgium imported 22,349 horses, chiefly from France, England, Holland, and Luxemburg. Wheat is imported from Roumania, United States, Argentina and Russia, the country first named being the chief competitor of the United States.

The production of cheese does not equal the demand, which is supplied chiefly by Holland, little, if any, being bought in the United States. While Belgium exports large quantities of butter, her imports are still greater, the excess of imports over exports being as high as 23,000,000 pounds in one year. In addition, enormous quantities of oleomargarine are imported for Belgian consumption. Belgium imports annually some 35 million pounds raw cotton from the United States and India. Within the last few years our trade with Belgium in fresh and dried fruits has made a gratifying showing. Canned goods are handled sparingly; prices too high and better advertising required. Taken as a whole, our trade with Belgium is not what it ought to be.

Austro-Hungary.

The foreign trade of Austro-Hungary is very largely with contiguous countries, although a part of our exports to Germany and Italy eventually go further. The Hungarian portion of this dual government has long been important as a producer of cereals, with a liberal surplus and a high state of development of the flour industry. Within the past few months, however, testimony has been developed hinting at the possibility that eventually Austro-Hungary will be an importer instead of an exporter of wheat and wheat flour. The United States exports small quantities of cottonseed oil and cotton goods to Austria, and is making some progress in introducing there American apples and dried fruits.

France.

Our trade relationship with France is highly important, not only to the manufacturing interests, but to agriculture as well. While a big producer of wheat and some other cereals, France requires liberal quantities of foreign breadstuffs and at all times is a large importer of provisions. Due in great part to the demands of the agrarian classes, French politicians and law-makers have maintained for many years burdensome duties on American farm produce, but in spite of this our exports to France are large in the aggregate. That republic buys liberally of cereals and flour, dairy products, cattle, horses, fruits, wool and woolen goods, cotton and cotton goods, hides, tobacco, hemp and hops. In these items the United States enjoys a fair trade, chiefly in grain and flour, raw cotton, and leaf tobacco. Exports from France, so far as agricultural products are concerned, include wines, butter and cheese, grain and flour, raw sugar, wool and woolen goods, hides and cotton and linen goods. The direct exports from the United States to France are important in such items as wheat and corn, lard, oil, raw cotton, field seeds and leaf tobacco.

Feed, weed, breed.

The Russian Empire.

No country is so formidable a competitor of the United States in the world's grain markets as Russia. With its vast agricultural territory and its almost incomprehensible capacity for development in that direction, the land of the czar promises to perpetually compete with the United States, in seeking an outlet for such cereals as wheat, rye and oats. Russia's developments in the dairy industry are not of such character as to permit any exports of consequence, but such items as poultry and eggs, flax and hemp, flaxseed and wool form exports of considerable consequence. Russia's sales of grain and other farm products are chiefly to the United Kingdom, France, Germany, and a few other countries of Europe. As a buyer, Russia has little use for foreign farm products outside of cotton, buying that liberally in the United States; no doubt, also, large quantities of raw American cotton reach Russia via England. The steady purchases of farm machinery in this country and elsewhere for export to Russia and Siberia, form one of the noteworthy features of agricultural development.

Italy.

Italy produces fair quantities of grain, but is not much of a factor in the world's markets. Her wheat crop is about 135 million bu, but almost without exception it is necessary to import more or less every year, usually 25 to 30 millions. These requirements are made up from Russia and Roumania almost exclusively. Italy yields a moderate crop of feeding stuffs, including an average annual production of some 70,000,000 bu corn, 25,000,000 bu oats, 8,000,000 bu barley and a small quantity of rye. Italy's exports to the United States are made up largely of lemons, oranges, olive and essential oils, and raw silk. Our exports direct to Italy are small, outside of raw cotton.

Cleaning a Plow.

Take a quart of water and pour slowly into it half a pint of sulphuric acid. The mixture will become quite warm from chemical action, and this is the reason why the acid should be poured slowly into the water rather than the water into the acid, and let it remain on the iron until it evaporates. Then wash it again. The object is to give the acid time to dissolve the rust. Then wash with water and you will see where the worst spots are. Apply some more acid, and rub on those spots with a brick. The acid and the scouring remove most of the rust. Then wash the moldboard thoroughly with water to remove all the acid, and rub it dry. Brush it over with petroleum, or other oil, and let it be till needed for use. When you go to plowing, take a bottle of the acid-water to the field with you and apply it every bout to any spot of rust that may remain. The acid and the scouring of the earth will soon make it perfectly bright and smooth. If all iron work be washed over with petroleum as soon as we put our tools, implements and machines aside for the winter, it will keep them from rusting.

To Reckon Value of Grain, Meat, Fertilizer, etc., Sold by the 100 Lbs.

Example: Find the value of 223 lbs. of pork at \$4.75 per 100 lbs. Under the 4.75 column we find the price of 200 lbs. is \$9.50; of 20 lbs. is .95, and of 3 lbs. is .14c. Adding these we have the answer, \$10.59.

Price per 100 lbs. in dollars.						Lbs.	Price per 100 lbs. in dollars.					
2.50	2.75	3.00	3.50	4.00	4.50	Weight.	4.75	5.00	5.25	5.75	6.25	6.50
.08	.08	.09	.11	.12	.14	3	.14	.15	.16	.17	.19	.20
.13	.14	.15	.18	.20	.23	5	.24	.25	.26	.29	.31	.33
.25	.28	.30	.35	.40	.45	10	.48	.50	.53	.58	.63	.65
.38	.41	.45	.53	.60	.68	15	.71	.75	.79	.86	.94	.98
.50	.55	.60	.70	.80	.90	20	.95	1.00	1.05	1.15	1.25	1.30
.63	.69	.75	.88	1.00	1.13	25	1.19	1.25	1.31	1.44	1.56	1.63
.75	.83	.90	1.05	1.20	1.35	30	1.43	1.50	1.58	1.73	1.88	1.95
.88	.96	1.05	1.23	1.40	1.58	35	1.66	1.75	1.84	2.01	2.19	2.28
1.00	1.10	1.20	1.40	1.60	1.80	40	1.90	2.00	2.10	2.30	2.50	2.60
1.13	1.24	1.35	1.58	1.80	2.03	45	2.14	2.25	2.36	2.59	2.81	2.93
1.25	1.38	1.50	1.75	2.00	2.25	50	2.38	2.50	2.63	2.88	3.13	3.25
1.38	1.51	1.65	1.93	2.20	2.48	55	2.61	2.75	2.89	3.16	3.44	3.58
1.50	1.65	1.80	2.10	2.40	2.70	60	2.85	3.00	3.15	3.45	3.75	3.90
1.63	1.79	1.95	2.28	2.60	2.93	65	3.09	3.25	3.41	3.74	4.06	4.23
1.75	1.93	2.10	2.45	2.80	3.15	70	3.33	3.50	3.68	4.03	4.38	4.55
1.88	2.06	2.25	2.63	3.00	3.38	75	3.56	3.75	3.94	4.31	4.69	4.88
2.00	2.20	2.40	2.80	3.20	3.60	80	3.80	4.00	4.20	4.60	5.00	5.20
2.13	2.34	2.55	2.98	3.40	3.83	85	4.04	4.25	4.46	4.89	5.31	5.53
2.25	2.48	2.70	3.15	3.60	4.05	90	4.28	4.50	4.73	5.18	5.63	5.85
2.38	2.61	2.85	3.33	3.80	4.28	95	4.51	4.75	4.99	5.46	5.94	6.18
2.50	2.75	3.00	3.50	4.00	4.50	100	4.75	5.00	5.25	5.75	6.25	6.50
2.63	2.90	3.15	3.65	4.15	4.65	105	4.99	5.25	5.50	6.00	6.50	6.75
2.75	3.00	3.25	3.75	4.25	4.75	110	5.23	5.50	5.75	6.25	6.75	7.00
2.88	3.15	3.40	3.90	4.40	4.90	115	5.47	5.75	6.00	6.50	7.00	7.25
3.00	3.25	3.50	4.00	4.50	5.00	120	5.71	6.00	6.25	6.75	7.25	7.50
3.13	3.40	3.65	4.15	4.65	5.15	125	5.95	6.25	6.50	7.00	7.50	7.75
3.25	3.50	3.75	4.25	4.75	5.25	130	6.19	6.50	6.75	7.25	7.75	8.00
3.38	3.65	3.90	4.40	4.90	5.40	135	6.43	6.75	7.00	7.50	8.00	8.25
3.50	3.75	4.00	4.50	5.00	5.50	140	6.67	7.00	7.25	7.75	8.25	8.50
3.63	3.90	4.15	4.65	5.15	5.65	145	6.91	7.25	7.50	8.00	8.50	8.75
3.75	4.00	4.25	4.75	5.25	5.75	150	7.15	7.50	7.75	8.25	8.75	9.00
3.88	4.15	4.40	4.90	5.40	5.90	155	7.39	7.75	8.00	8.50	9.00	9.25
4.00	4.25	4.50	5.00	5.50	6.00	160	7.63	8.00	8.25	8.75	9.25	9.50
4.13	4.40	4.65	5.15	5.65	6.15	165	7.87	8.25	8.50	9.00	9.50	9.75
4.25	4.50	4.75	5.25	5.75	6.25	170	8.11	8.50	8.75	9.25	9.75	10.00
4.38	4.65	4.90	5.40	5.90	6.40	175	8.35	8.75	9.00	9.50	10.00	10.25
4.50	4.75	5.00	5.50	6.00	6.50	180	8.59	9.00	9.25	9.75	10.25	10.50
4.63	4.90	5.15	5.65	6.15	6.65	185	8.83	9.25	9.50	10.00	10.50	10.75
4.75	5.00	5.25	5.75	6.25	6.75	190	9.07	9.50	9.75	10.25	10.75	11.00
4.88	5.15	5.40	5.90	6.40	6.90	195	9.31	9.75	10.00	10.50	11.00	11.25
5.00	5.25	5.50	6.00	6.50	7.00	200	9.55	10.00	10.25	10.75	11.25	11.50
5.13	5.40	5.65	6.15	6.65	7.15	205	9.79	10.25	10.50	11.00	11.50	11.75
5.25	5.50	5.75	6.25	6.75	7.25	210	10.03	10.50	10.75	11.25	11.75	12.00
5.38	5.65	5.90	6.40	6.90	7.40	215	10.27	10.75	11.00	11.50	12.00	12.25
5.50	5.75	6.00	6.50	7.00	7.50	220	10.51	11.00	11.25	11.75	12.25	12.50
5.63	5.90	6.15	6.65	7.15	7.65	225	10.75	11.25	11.50	12.00	12.50	12.75
5.75	6.00	6.25	6.75	7.25	7.75	230	11.00	11.50	11.75	12.25	12.75	13.00
5.88	6.15	6.40	6.90	7.40	7.90	235	11.24	11.75	12.00	12.50	13.00	13.25
6.00	6.25	6.50	7.00	7.50	8.00	240	11.48	12.00	12.25	12.75	13.25	13.50
6.13	6.40	6.65	7.15	7.65	8.15	245	11.72	12.25	12.50	13.00	13.50	13.75
6.25	6.50	6.75	7.25	7.75	8.25	250	11.96	12.50	12.75	13.25	13.75	14.00
6.38	6.65	6.90	7.40	7.90	8.40	255	12.20	12.75	13.00	13.50	14.00	14.25
6.50	6.75	7.00	7.50	8.00	8.50	260	12.44	13.00	13.25	13.75	14.25	14.50
6.63	6.90	7.15	7.65	8.15	8.65	265	12.68	13.25	13.50	14.00	14.50	14.75
6.75	7.00	7.25	7.75	8.25	8.75	270	12.92	13.50	13.75	14.25	14.75	15.00
6.88	7.15	7.40	7.90	8.40	8.90	275	13.16	13.75	14.00	14.50	15.00	15.25
7.00	7.25	7.50	8.00	8.50	9.00	280	13.40	14.00	14.25	14.75	15.25	15.50
7.13	7.40	7.65	8.15	8.65	9.15	285	13.64	14.25	14.50	15.00	15.50	15.75
7.25	7.50	7.75	8.25	8.75	9.25	290	13.88	14.50	14.75	15.25	15.75	16.00
7.38	7.65	7.90	8.40	8.90	9.40	295	14.12	14.75	15.00	15.50	16.00	16.25
7.50	7.75	8.00	8.50	9.00	9.50	300	14.36	15.00	15.25	15.75	16.25	16.50
7.63	7.90	8.15	8.65	9.15	9.65	305	14.60	15.25	15.50	16.00	16.50	16.75
7.75	8.00	8.25	8.75	9.25	9.75	310	14.84	15.50	15.75	16.25	16.75	17.00
7.88	8.15	8.40	8.90	9.40	9.90	315	15.08	15.75	16.00	16.50	17.00	17.25
8.00	8.25	8.50	9.00	9.50	10.00	320	15.32	16.00	16.25	16.75	17.25	17.50
8.13	8.40	8.65	9.15	9.65	10.15	325	15.56	16.25	16.50	17.00	17.50	17.75
8.25	8.50	8.75	9.25	9.75	10.25	330	15.80	16.50	16.75	17.25	17.75	18.00
8.38	8.65	8.90	9.40	9.90	10.40	335	16.04	16.75	17.00	17.50	18.00	18.25
8.50	8.75	9.00	9.50	10.00	10.50	340	16.28	17.00	17.25	17.75	18.25	18.50
8.63	8.90	9.15	9.65	10.15	10.65	345	16.52	17.25	17.50	18.00	18.50	18.75
8.75	9.00	9.25	9.75	10.25	10.75	350	16.76	17.50	17.75	18.25	18.75	19.00
8.88	9.15	9.40	9.90	10.40	10.90	355	17.00	17.75	18.00	18.50	19.00	19.25
9.00	9.25	9.50	10.00	10.50	11.00	360	17.24	18.00	18.25	18.75	19.25	19.50
9.13	9.40	9.65	10.15	10.65	11.15	365	17.48	18.25	18.50	19.00	19.50	19.75
9.25	9.50	9.75	10.25	10.75	11.25	370	17.72	18.50	18.75	19.25	19.75	20.00
9.38	9.65	9.90	10.40	10.90	11.40	375	17.96	18.75	19.00	19.50	20.00	20.25
9.50	9.75	10.00	10.50	11.00	11.50	380	18.20	19.00	19.25	19.75	20.25	20.50
9.63	9.90	10.15	10.65	11.15	11.65	385	18.44	19.25	19.50	20.00	20.50	20.75
9.75	10.00	10.25	10.75	11.25	11.75	390	18.68	19.50	19.75	20.25	20.75	21.00
9.88	10.15	10.40	10.90	11.40	11.90	395	18.92	19.75	20.00	20.50	21.00	21.25
10.00	10.25	10.50	11.00	11.50	12.00	400	19.16	20.00	20.25	20.75	21.25	21.50
10.13	10.40	10.65	11.15	11.65	12.15	405	19.40	20.25	20.50	21.00	21.50	21.75
10.25	10.50	10.75	11.25	11.75	12.25	410	19.64	20.50	20.75	21.25	21.75	22.00
10.38	10.65	10.90	11.40	11.90	12.40	415	19.88	20.75	21.00	21.50	22.00	22.25
10.50	10.75	11.00	11.50	12.00	12.50	420	20.12	21.00	21.25	21.75	22.25	22.50

IRRIGATION.

The Arid Region.

West of the longitudinal line running through the eastern boundary of Colorado, there were, in 1890, about 3,631,000 acres under irrigation, according to the last census. The arid region, which embraces in part all the states in this territory, will not produce satisfactory crops unless irrigated. Since the census figures were taken, some additional land has been brought under irrigation, but a large proportion of the irrigable land west of Colorado's eastern line remains to be watered. In the Dakotas, Nebraska, Kansas, Oklahoma and Texas, known as the sub-humid region, there is much land upon which the rainfall is insufficient to produce full crops. Irrigation can be and is profitable in this region. Within recent years the necessity of irrigation in the humid region east of the western boundary line of Iowa and Missouri has become apparent. Widespread drouth at critical times in the life of certain crops has drawn the attention of central, western, southern and eastern farmers to the value of applying water artificially. Especially is this true of fruit growers and market gardeners.

EXTENT OF IRRIGATION.

The average value of the irrigated land in farms in the United States was ascertained by the census of 1890 to be \$83 per acre, and that of the non-irrigated land in farms \$21 per acre. The average annual value of the agricultural products of the irrigated land was ascertained to be \$15 per acre irrigated, and that of those of the non-irrigated land \$7 for each acre improved.

The average first cost of the irrigated land, including purchase money, water rights, etc., was ascertained to have been \$8.15 per acre, and the average annual cost of the water supply \$1.07 per acre. The total value of the irrigated farms of the United States, as reported by the farmers themselves, was, in round figures, \$296,850,000, an increase of \$219,360,000, or 233 per cent. upon their cost, including land, water rights, fences, and preparation for cultivation. The total value of the productive irrigating systems was found to be \$94,412,000, an increase of \$64,801,000, or 219 per cent upon their cost.

IRRIGATION IS MOST PROFITABLE

Where extensive farming is practiced. The greatest economy of labor, water, fertilizers, etc., can then be practiced. Tests have been made comparing surface and sub-irrigation. The results have been uniformly unfavorable to the latter. The laying of underground pipes is expensive, and it is almost, if not quite, impossible to get a uniform distribution of water. While water moves up and down quite readily, passage from side to side is very slow. The soil surrounding the pipes becomes excessively wet, while a large proportion of the soil between the pipes is comparatively dry; a considerable amount of the water may pass down into the lower layers without being of the slightest benefit to the crop.

Where irrigating is to be done on a large scale, it seems to be the consensus of opinion that surface application by means of furrows is the most practical method. In greenhouses and gardens, sub-irrigation by means of tile may be found advisable. In the sub-humid regions, subsoiling in con-

nection with irrigation is found to be very important. While this method of preparing the grounds does not create moisture, it is a means of conserving it, and the greater part of the water precipitated is retained for the plants until they need it. It may also result in a great saving of irrigation water.

IRRIGATION BY MEANS OF RAMS.

Where the ground is uneven, the raising of water by the hydraulic ram has been practiced successfully. A Connecticut farmer states that he purchased a hydraulic ram, 900 feet of 2-inch galvanized iron pipe, the same amount of 1-inch pipe and two iron tanks with a total capacity of 150 bbls. Three out of six summers this plant was used with good results. The remainder of the time, irrigation was not necessary. The supply is taken from a small stream fed by several springs. A dam had been built across it and a reservoir covering half an acre constructed. This furnished irrigation water in summer, and was used for filling an icehouse in the winter. This farmer found that irrigation was a good insurance against short periods of drouth and after six years purchased another and larger ram, and two galvanized tanks with a capacity of 360 bbls. One summer he irrigated one acre of strawberries with most flattering results, running the water between the rows. The water was forced a distance of 700 feet and 60 feet above the ram. The drive pipe from the pond to the ram is a 4-inch galvanized pipe and the fall is 6 1-2 feet. Where conditions are suitable, this kind of irrigation is quite practical.

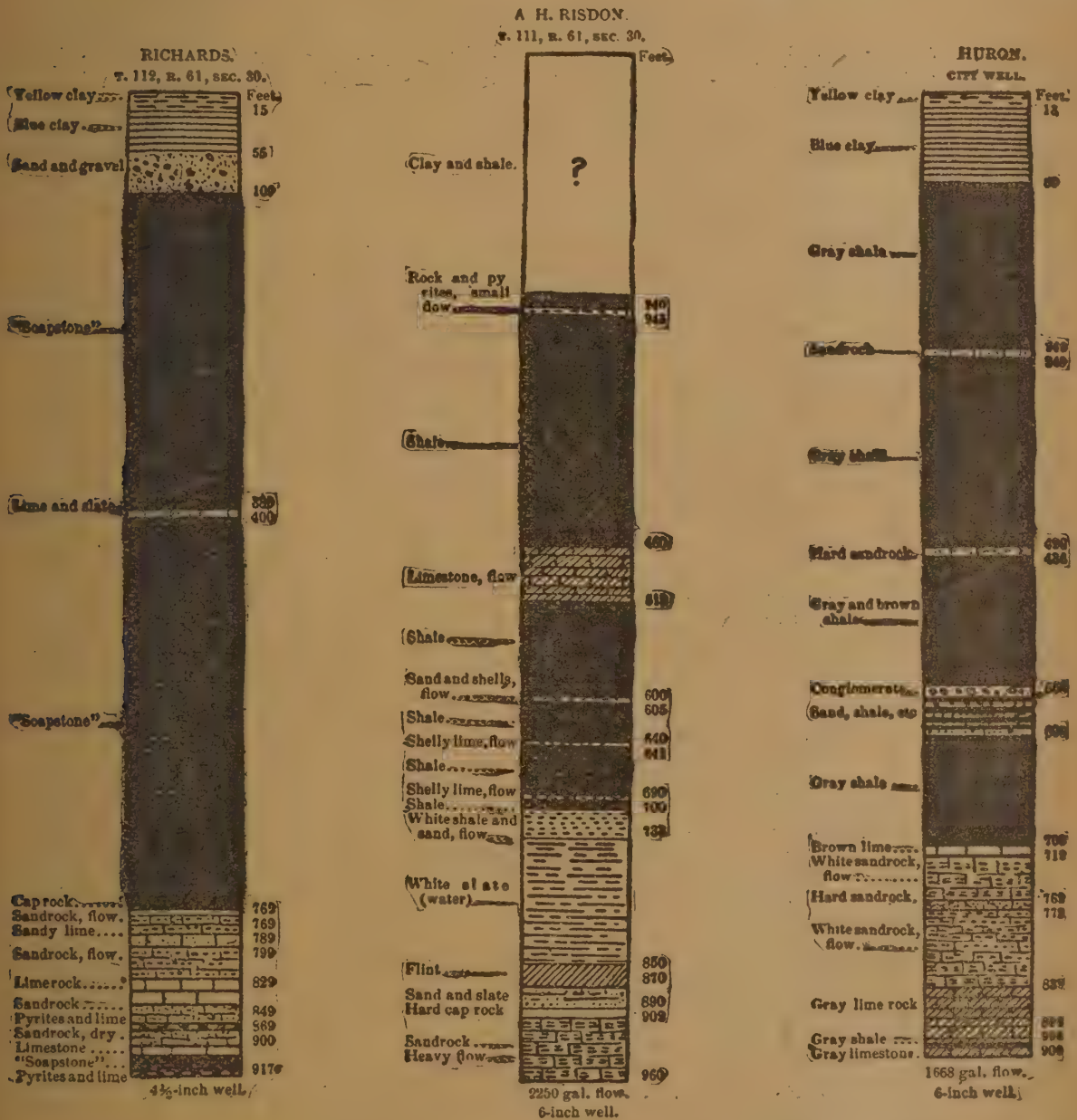
J. C. Eddy, also of Connecticut, whose farm lies in a valley, through which runs a small brook carrying from 12 to 20 gallons per second, constructed a small dam 2 feet high, so that part of the water was diverted into a new channel, which was carried along nearly on a level until a fall of seven feet could be obtained. This was sufficient to enable a ram to force the water 70 feet high through a 2 1-2 inch pipe into a natural pond that holds surface water most of the time. This pond holds over 300,000 gallons, or enough to cover 10 acres one inch deep. By starting with the pond full, strawberries can be carried through the season successfully. By keeping the ram at work all the time, the entire five acres could be irrigated with one inch in depth of water once a week through the packing season. The water was distributed by means of a hose with large spraying nozzle. In 1896, irrigated strawberry beds yielded 1 1-4 times more than those not irrigated, and sold for 3c per quart more those not watered.

ARTESIAN WELL IRRIGATION.

Artesian wells are found in many places, but Colorado and the Dakotas contain the most noted basins. The estimated extent of the Colorado artesian section is shown in a following engraving. The use of this water for irrigation began several years ago, and there are now nearly 100 farms on which artesian wells are used for watering crops. These are mainly in South Dakota. In most cases, results have been so satisfactory that farmers are enthusiastic, and many are preparing to adopt the system. There have been some unsuccessful attempts at artesian irrigation, but they have usually been due to excessive flooding while crops were growing, or the use of cold water from shallow wells. With experience, these difficulties are vanishing. In Aurora Co., Mullen Bros., with a well 950 feet deep, irrigated 40 acres in 1895. The gross sales from 19 acres of vegetables were \$2,200. Eight acres of potatoes yielded 960 bushels, one acre irrigated twice produced 300 bushels, wheat 32 bushels, 7 acres of onions 1800 bushels, 3-4 of an acre 3000 heads of cabbages.

Who sells upon credit loses friends and money.

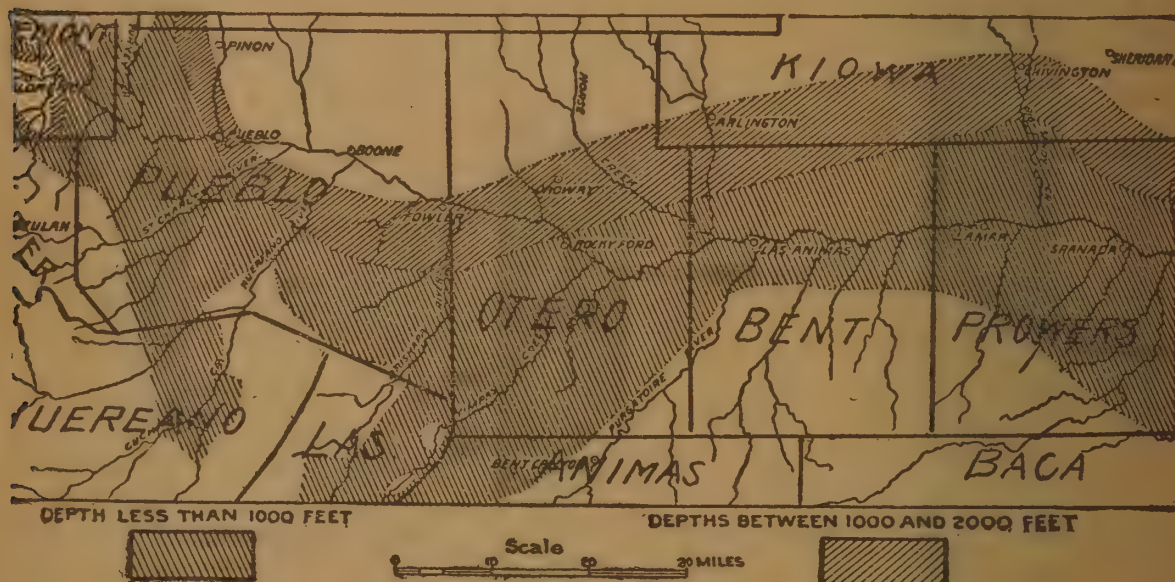
In Beadle Co., F. A. White, near Huron, on irrigated land, reports 2480 bushels of beets per acre, corn 50 bushels, onions 500 bushels, rutabagas 846 bushels, sugar corn 1000 doz., squashes 4000, potatoes 175 to 200 bushels, cabbage 4000 heads, pumpkins 2000 to 2500. His land has been irrigated since 1892. Many other counties report equally flattering results. Quite a number of wells which were sunk in the Dakotas have since become damaged to such an extent that they are of no future use. This has given impression to many that an artesian well is short lived. This is not true. The principal cause of failure was found to be the clogging up of the wells by sand or clay.



Another difficulty was the flowing water around the outer pipe in such a manner that the supply could no longer be controlled. Lack of experience on the part of those building the wells resulted in the defective ones. Many of these men have since become experts, and later wells have been satisfactory.

ON THE MEASUREMENT OF WATER.

A water right is the right or privilege of using water for irrigating purposes, either in a definite quantity or upon a prescribed area of land, such right or privilege being customarily acquired either by priority of use or by purchase. In many parts of the arid region, a water right is an exceedingly valuable property. The average value of the water rights of the entire arid region, as determined by the census of 1890, was \$26 per acre, and there are fruit-growing districts in California where water rights have been sold at as high as \$1,500 per miner's inch, or from \$100 to \$500 per acre, according to the amount used on any given area of land.



Artesian Well District in Eastern Colorado.

The duty of water is the extent of the service it will perform when used for irrigating purposes, that is, the number of acres a given quantity of water will adequately irrigate under ordinary circumstances. This is usually from 100 to 200 acres for each second-foot. Where water is abundant, the duty has been known to be as low as 50 acres, and, where very scarce, as high as 500 acres to the second-foot.

A miner's inch is theoretically such a quantity of water as will flow through an aperture 1 inch square in a board two inches thick under a head of water of 6 inches in one second of time, and it is equal to 0.194 gallon, or 0.0259337 cubic foot per second, or to 11.64 gallons, or 1.556024 cubic feet per minute. The amount of water flowing through a given aperture in a given time varies, however, with the head of the water over the opening and also with the form of the opening. In Colorado, the miner's inch legalized by statute equals 11.7 gallons per minute. The California miner's inch, however, equals only 9 gallons per minute, 100 Colorado inches being, accordingly, equal to 130 California inches. One hundred Colorado inches will cover an acre to a depth of 5.2 feet in twenty-four hours; 100 California inches will

The Golden Age was always in the past.

cover the same area only to a depth of 4 feet in the same time. Fifty California inches are therefore, approximately, equal to 1 second-foot, and 50 Colorado inches to about three-tenths more.

A second-foot is the most satisfactory, because the most definite, unit of measurement for flowing water. It is used by the United States government in the gauging of rivers and streams, and is rapidly superseding the miner's inch in the measurement of water for irrigation. It is the quantity represented by a stream 1 foot wide and 1 foot deep, flowing at the average rate of 1 foot per second. In other words, it is 1 cubic foot per second, 60 cubic feet per minute, 3,600 cubic feet per hour, and so on. A stream flowing continuously at the average rate of 1 second-foot would carry in one day of 24 hours 86,400 cubic feet, or 646,316 gallons, sufficient to cover 2 acres to a depth of one foot. Flowing continuously for one year of 365 days, such a stream would carry 31,536,000 cubic feet, or 235,905,678 gallons, sufficient to cover 724 acres to a depth of one foot.

To measure flowing water in ditches, canals and rivers, multiply the area by the mean velocity of its flow in feet per second, and the product is the volume in cubic feet; divide the number of cubic feet by 1.57, and the result will be the number of Colorado miner's inches.

NATIONAL IRRIGATION CONGRESS.

This body, which held its sixth annual convention at Lincoln, Neb., Sept. 28-30, 1897, has for its object the solving of irrigation problems, and the promotion of all irrigation enterprises. It is a delegated body. The make-up varies somewhat from year to year, but the following basis of representation is usually adhered to:

1. All members of the national executive committee.
 2. All members of state and territorial irrigation commissions.
 3. Five delegates at large, to be appointed by their respective governors, for each of the following states and territories; Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington and Wyoming.
 4. Three delegates at large for each state and territory not heretofore enumerated, to be appointed by the governors of said states and territories; or, in the case of the District of Columbia, by the president.
 5. One delegate each from regularly organized irrigation, agricultural, and horticultural societies, and societies of engineers, irrigation companies, agricultural colleges and commercial bodies, such as boards of trade, chambers of commerce, etc.
 6. Duly accredited representatives of any foreign nation or colony, each member of the United States senate and house of representatives, and each governor of a state or territory will be admitted as honorary members.
 7. Cities of 25,000 inhabitants, or over, are entitled to one representative.
- The following officers were elected at the Lincoln meeting: President, Joseph M. Carey of Cheyenne, Wyoming; vice presidents, S. A. Cochran of South Dakota, L. W. Shurtliff of Ogden, Utah, and S. M. Knox of Illinois; secretary, T. G. Frost of Minneapolis, Minn.; minute clerk, O. E. McCutcheon of Michigan; reading clerk, Col. H. D. Maxon of Nevada; file clerk, P. C. Erricsson of Nebraska; press reporter, R. J. Culver of California.

IRRIGATION LAW—IMPORTANT DECISIONS.

The basis of all recent irrigation legislation is the Wright law of California. It was approved March 7, 1887, and amended in '89, '91 and '93. In effect it provides for the formation of irrigation districts, if 50 or a majority

of the holders of title desire it. A petition from the land holders is presented to the supervisors of the county, who order a vote. If a majority of voters favor it, an election is held, creating a board which has the power to construct canals and reservoirs of sufficient size to provide enough water for irrigating all the land in the district which needs artificial watering, and no other is to be included. The directors of this board are authorized to raise money by bonding the district, this action subject to the approval of a majority of voters at an election called especially for this purpose. These bonds are to run 20 years and bear 6 per cent interest. They must be sold by advertising for bids, but on no account can the board sell any of them for less than 90 per cent. of their face value. If taxes are unpaid on any land in the district, that land may be sold at auction. If there is no bidder, the land is sold to the irrigation district itself. The directors are required to do all work of construction by letting it to the lowest responsible bidder, and these directors and all other officers are strictly enjoined from being in any way interested in such contract. After the proceedings for the organization of a district have been completed, the board must submit its plans to the superior court for confirmation.

The above covers the general provisions of the act, but of course there is a great amount of detail. The purpose of the law, it will be seen, is to encourage construction, ownership and operation of irrigation works by the community that uses the water, instead of having the irrigation system built and run by private corporations.

The validity of the Wright law was attacked and it was held that the federal constitution was violated by authorizing the sale of land for irrigation taxes, the point being that irrigation water was used to benefit private interests and in consequence public taxes could not be levied to provide it. This view was upheld by Judge Ross of the United States circuit court of southern California. The supreme court of the state overruled this decision and declared the law constitutional. The case was carried to the United States supreme court and in November, 1896, the rulings of the state supreme court were upheld and those of the lower court reversed. The decision of the United States supreme court made it plain that to provide for the irrigation of lands where it was not necessary, or simply to make it possible to cultivate entirely new crops, was an improper exercise of legislative power, but in a state like California, which embraced millions of acres of arid land, providing for its irrigation is to be regarded as devoting water to public use and is therefore a valid exercise of legislative power. Unless such use is considered public use, it would be impossible to carry into effect any general scheme of irrigation. The fact that the use of water is limited to the land owner is not a material objection. It is not essential that the entire community, or any considerable portion of it, be directly benefited to constitute a public use. All land owners in a district have a right to a proportionate share of the water and no one is favored above another. This decision placed the constitutionality of the Wright act beyond dispute, and the interest in formation of districts has greatly increased. There are now (November, 1897) between 40 and 50 organized in various portions of California, as shown by the following tabular statement, which also gives statistics of these districts.

In the districts which have been organized a total area of over 2,313,000 acres is included. Bonds to the amount of a little over \$16,800,000 have been voted. Bonds have been issued for \$7,845,000, the greater portion of which have been traded for work or water rights, or paid to contractors for building works. Of the area of the districts, about 110,000 acres are actually supplied with water—that is, actually being cultivated and irrigated. This is less than 5 per cent of the total district area.

Don't keep a sun-dial in the shade.

IRRIGATION.

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STATISTICS OF WRIGHT IRRIGATION DISTRICTS IN CALIFORNIA, JULY, 1897.

From the San Francisco Chronicle.

NAME.	County.	Area— Acres.	Bonds voted.	When organ- ized.	Remarks.
Alessandro.....	Riverside,	25,340	\$765,000	1890	Claimed that the bonds were issued illegally, and suit has been brought to set them aside. Not one-sixth of water contracted and paid for delivered.
Alta.....	Fresno a'd Tulare	129,927	675,000	1888	About one-quarter to one-third actually irrigated.
Big Rock Creek	Los Angeles,	40,000	400,000	1890	Small area irrigated. Suit now pending to declare bonds illegal.
Browns Valley.....	Yuba,	43,000	140,000	1888	Considerable area above ditches. Many land owners in arrears for taxes. District not confirmed by the Superior court.
Central	Colusa and Glenn	156,550	750,000	1887	Works partly completed, but operations suspended.
Citrus Belt.....	San Bernardino,	11,700	800,000	1890	Disorganized, and will buy water from bond-holders.
Escondido	San Diego,	12,800	450,000	1889	Part of land supplied with water. Not enough for entire district.
East Riverside.....	Riverside,	3,600	250,000	1890	Litigation now pending; 2,000 acres now irrigated.
Grapeland	San Bernardino,	10,787	200,000	1890	2,500 acres now irrigated. Water just lost in entirety by court dec'n
Jamacha.....	San Diego,	22,000	25,000		Litigation contemp'd
Lindavista.....	San Diego,	42,000	1,500,000		
Modesto	Stanislaus,	80,000	800,000	1887	Works under way and not completed.
Perris.....	Riverside,	22,800	442,000	1890	But partially supplied. 1,200 acrs. irrigated
Poso	Kern,	40,000	500,000	1890	No water yet suppl'd
Realto.....	San Bernardino,	7,294	500,000	1890	2,400 acres irrigated. Nearly half of water supply lost. Being disorganized.
San Jacinto and Pleasant Valley..	Riverside,	18,660	350,000	1891	1,500 acres trees and vines irrigated.
Tipton.....	Tulare,	17,500	70,000	1891	District in litigation.
Tulare	Tulare,	36,700	500,000	1889	Defense assn. organized. Irregularity in issuing bonds alleged.
Tule River	Tulare,	30,000	100,000	1891	Suit now pending.
Turlock.....	Stanislaus,	180,000	1,200,000	1887	Works not complete.
Vineland.....	Los Angeles,	4,500	50,000	1889	Measurably succesf'l
Little Rock Creek..	Los Angeles,	3,200	60,000	1892	2,000 a. now irrigated
Glendora.....	Los Angeles,	3,000	170,000	1891	Bonds declared illegal by supreme court.
Amargosa	Los Angeles,	23,400		1894	Bond elect'n defeatd
Manzana.....	Los Angeles,	2,000	55,000	1891	About 1,500 acres irrigated.

As will be seen from the foregoing, there have been 47 districts fully organized, or in which the preliminary steps were taken for organization. In 23 of these nothing has ever been done. In 13 a portion of the land has been supplied with water. Liti-

gation has either been commenced or is threatened in a large share of the 20 districts which may be said to be in operation.

It is very difficult to ascertain the exact amount of bonds sold for cash, as in some districts which have issued large amounts no bond register has been kept.

Another decision of far-reaching importance was made by Judge Ross, in which he shows that where water is appropriated for distribution and sale, the public has a right to it. A water company owning canals for conveying water to other persons for use is simply a common carrier. The water belongs to the people and not to the company. Therefore water must be furnished to whoever asks for it and tenders the usual rate. Water thus appropriated for sale and distribution is devoted to public use, and no one by complying with the requirements of the law can be debarred from its benefits. The company against which suit had been brought demanded a sum of money in addition to the charge authorized by law.

Judge McKinly, of Los Angeles, has lately rendered a decision covering the right of anyone to take water from the underground flow of a stream whose surface is already entirely appropriated. In the case in question, a tunnel was run under a flowing stream containing irrigation water. The amount of water in the stream was diminished. The decision was to the effect that water which flows in the streams of California, both above and underground, belongs to the same stream and cannot be taken below the surface any more than it can be diverted from the stream itself. Those who originally appropriated the water, own all of it, both above and below the surface, and cannot be robbed by tunneling immediately under the bed of a running stream.

AVERAGE COST PER MILE OF CONSTRUCTING IRRIGATING CANALS AND DITCHES.

STATES AND TERRITORIES.	Under 5 feet in width.	5 to 10 feet in width.	10 feet and over in width.
Arizona	\$471	\$1,674	\$5,274
California.....	885	5,957	15,511
Colorado.....	380	1,131	5,258
Idaho	205	810	1,320
Montana.....	325	800	2,300
Nevada.....	200	1,150	.....
New Mexico.....	310	581	6,666
Oregon.....	260	1,060	1,300
Utah.....	493	1,025	3,072
Washington.....	285	1,236	2,571
Wyoming .....	.....	837	3,884
Sub-humid region	303	447	1,884
General average.....	\$481	\$1,628	\$5,603

NUMBER OF GALLONS IN CIRCULAR TANKS AND WELLS.

Gallons when the depth is

Diameter	3 ft.	4 ft.	5 ft.	6 ft.	7 ft.	8 ft.	9 ft.	10 ft.	11 ft.	12 ft.
4 feet.....	282.00	376.00	470.00	564.00	658.00	752.00	846.00	940.00	1034.00	1128
5 "	440.63	587.50	734.38	881.25	1028.13	1175.00	1321.89	1468.76	1615.63	1762
6 "	634.50	846.90	1057.50	1269.00	1480.50	1692.00	1903.50	2115.00	2326.50	2538
7 "	863.63	1151.50	1439.38	1727.25	2015.13	2303.00	2590.89	2878.76	3166.63	3454
8 "	1128.00	1504.00	1880.00	2256.00	2632.00	3008.00	3384.00	3760.00	4136.00	4512
9 "	1427.63	1903.50	2379.38	2855.26	3331.13	3806.00	4282.89	4758.76	5234.63	5710
10 "	1762.52	2350.00	2937.52	3525.00	4112.52	4700.00	5287.53	5875.04	6461.52	7050
11 "	2132.63	2843.50	3554.38	4265.26	4976.12	5687.00	6397.89	7108.76	7819.43	8530
12 "	2538.00	3384.00	4230.00	5076.00	5922.00	6768.00	7614.00	8460.00	9306.00	10152

To find the contents in gallons of circular tanks, etc., square the diameter in feet, multiply by the depth, and then multiply by 5.875.

To find the number of gallons in any square or oblong vessel, multiply the number of cubic feet contained in it by 7.4805.

Wise men learn by others' troubles; fools by their own.

CAPACITY OF CISTERNS AND TANKS.

In Gallons, for Each Twelve Inches in Depth.

(A. R. WOLFF.)

Diameter in feet.	Gallons.	Diameter in feet.	Gallons.	Diameter in feet.	Gallons.
1.0	5.87	6.5	248.23	11.0	710.90
2.0	23.50	7.0	287.88	11.5	777.05
2.5	36.72	7.5	330.48	12.0	846.03
3.0	52.88	8.0	376.00	13.0	992.91
3.5	71.97	8.5	424.48	14.0	1,151.54
4.0	94.00	9.0	475.89	15.0	1,321.92
4.5	118.87	9.5	530.24	20.0	2,350.08
5.0	146.88	10.0	587.52	25.0	3,672.00
5.5	177.72	10.5	647.74	30.0	5,287.68
6.0	211.51				

QUANTITY OF RAINFALL CORRESPONDING TO GIVEN DEPTHS.

Adapted from the Smithsonian Meteorological Tables by U. S. Weather Bureau.

Depth of Rainfall. Inches.	Imperial gallons per acre.	Barrels (31 gallons) per acre.	Tons (2000 lbs) per acre.	Cubic inches per acre.	Cubic feet per acre.
0.25	5,656	182	28	1,566,712	58,026
0.50	11,312	365	56	3,133,424	116,053
0.75	16,968	547	85	4,700,136	174,079
1.00	22,624	730	113	6,266,848	232,105
1.25	28,280	912	141	7,833,560	290,132
1.50	33,936	1,095	170	9,400,272	348,158
1.75	39,592	1,277	198	10,966,984	406,185
2.00	45,248	1,460	226	12,533,696	464,211
2.25	50,904	1,642	254	14,100,408	522,237
2.50	56,560	1,825	282	15,667,120	580,264
2.75	62,216	2,007	311	17,233,832	628,293
3.00	67,872	2,189	339	18,800,544	696,317
4.00	90,496	2,919	452	25,067,392	928,422
5.00	113,120	3,649	565	31,334,240	1,160,528
6.00	135,744	4,379	678	37,601,088	1,392,633

CAPACITY OF WINDMILLS WITH WIND BLOWING AT THE RATE OF 16 MILES PER HOUR.

Gallons of water raised per minute to an elevation of						Expense of actual useful power developed; in cents, per hour.					
	25 ft.	50 ft.	75 ft.	150 ft.	200 ft.	For int. at 5% per an.	For rep's and de- preciat'on (5% cost.)	For attend- ance.	For oil.	Total.	Expenses per horse- power, in cts. per h'r
I	6,162	3,016				.25	.25	.06	.04	.60	15.0
II	19,179	9,563	6,538			.30	.30	.06	.04	.70	5.8
III	33,941	17,952	17,952	5,680		.36	.36	.06	.04	.82	3.9
IV	45,139	22,569	15,304	7,807	4,998	.75	.75	.06	.07	1.63	5.8
V	64,600	31,654	19,542	9,771	8,075	1.15	1.15	.06	.07	2.43	5.9
VI	97,682	52,165	32,513	17,485	12,211	1.35	1.35	.06	.07	2.83	4.6
VII	124,950	63,750	40,800	19,284	15,938	1.70	1.70	.06	.10	3.56	4.5
VIII	212,381	106,904	71,604	37,349	26,741	2.05	2.05	.06	.10	4.26	3.2

CAPACITY OF CISTERNS IN BARRELS, PER FOOT IN DEPTH (HALL).

SQUARE CISTERN.				CIRCULAR CISTERN.			
				Barrels.			
5 feet by 5 feet holds,				5.92	5 feet in diameter holds,		4.66
6 " " 6 " "				8.54	6 " " " "		8.54
7 " " 7 " "				11.63	7 " " " "		11.63
8 " " 8 " "				15.19	8 " " " "		15.19
9 " " 9 " "				19.39	9 " " " "		19.39
10 " " 10 " "				23.74	10 " " " "		23.74

CARRYING CAPACITY OF PIPES.

Gallons per minute.

Size of pipe.	1 in. fall per 100 ft	2 in. fall per 100 ft	3 in. fall per 100 ft	6 in fall per 100 ft.	9 in fall per 100 ft.	1 ft. fall per 100 ft.	2 ft. fall per 100 ft.	3 ft. fall per 100 ft.
3 inch	13	19	23	32	40	46	64	79
4 "	27	38	47	66	81	93	131	163
6 "	75	105	129	183	224	258	364	450
8 "	153	216	265	375	460	527	750	923
9 "	205	290	355	503	617	712	1,006	1,240
10 "	267	378	463	655	803	926	1,310	1,613
12 "	422	596	730	1,033	1,273	1,468	2,076	2,554
15 "	740	1,021	1,282	1,818	2,224	2,464	3,617	4,467
18 "	1,168	1,651	2,022	2,860	3,508	4,045	5,704	7,047
24 "	2,396	3,387	4,155	5,874	7,202	8,303	11,744	14,466
30 "	4,187	5,920	7,252	10,557	12,580	14,504	20,516	25,277

Number of square feet and acres that a first-class windmill can irrigate one inch in eight hours, raising the water 10, 15 or 25 feet.

(A. R. WOLFF.)

Size of Windmill.	10 Feet.		15 Feet.		25 Feet.	
	Sq. ft.	Acres.	Sq. ft.	Acres.	Sq. ft.	Acres.
8 ft. diam. of wheel.....	11,736.34	.269	7,824.74	.180	4,744.74	.109
10 " " " "	37,161.74	.853	24,774.75	.569	14,767.83	.339
12 " " " "	66,765.16	1.533	44,509.85	1.022	26,134.57	.600
14 " " " "	85,982.05	1.974	57,321.11	1.316	34,757.03	.798
16 " " " "	120,106.14	2.757	80,070.76	1.838	49,742.00	1.142
18 " " " "	192,446.10	4.418	123,164.58	2.827	75,215.14	1.727
20 " " " "	238,395.08	5.473	158,930.31	3.649	96,211.50	2.209
25 " " " "	410,038.09	9.413	273,359.24	6.275	163,533.37	3.754
30 " " " "	831,686.24	19.093	561,197.56	12.883	331,752.96	7.616

A simple method to determine what a windmill pump is discharging is to measure the actual delivery with a gallon measure for one minute and multiply by sixty. Divide the gallons per hour by 38 to obtain the acre inches per month, or by 13 for the acre inches in three months. These results are not mathematically accurate, but will be found close enough for ordinary computations. They make no allowance for seepage and evaporation.

Measuring in Bulk.

Two cubic feet of sound, dry corn in the ear will make a bushel shelled. To get the quantity of shelled corn in a crib of corn in the ear, measure the length, breadth and height of the crib, inside of the rail; multiply the length by the breadth, and the product by the height; then divide the product by two, and you have the number of bushels in the crib.

To find out the number of bushels of apples, potatoes, etc., in a bin, multiply the length, breadth and thickness together, and this product by eight, and point one figure in the product for decimals. To find the amount of hay in a mow, allow 512 cubic feet for a ton, and it will come out very near correct.

BURNING ICE—Take essential oil of distilled turpentine, set in a vessel over a slow fire, and melt into it some spermaceti, forming a clear transparent liquid; put this in a cool place, and in two or three minutes it becomes like ice. It is necessary to observe that the spermaceti, to be melted, should be added in sufficiently large pieces. Should the season when you attempt this experiment prove too warm, put your vase, when its contents are melted, into cold water. As soon as the liquid once frozen begins to liquify, pour over it some good spirits of niter, then the whole will take fire and be consumed.

Little strokes fell great oaks.

LUMBER AND FORESTRY.

Native lumber is likely to become as scarce as the buffalo, at the present rate of destruction in the United States. To make shoe pegs enough for American use consumes annually 100,000 cords of timber, and to make lucifer matches, 300,000 cubic feet of the best pine are required every year. Lasts and boot-trees take 500,000 cords of birch, beech and maple, and the handles of tools 500,000 more. The baking of bricks consumes 2,000,000 cords of wood, or what would cover with forest about 50,000 acres of land. Telegraph poles already up represent 800,000 trees, and their annual repairs consume 300,000 more. The ties of railroads consume annually thirty years' growth of 75,000 acres, and to fence all the railroads in the United States would cost \$45,000,000, with a yearly expenditure of \$15,000,000 for repairs. These are some of the ways which American forests are going. There are others; packing boxes, for instance, cost, in 1874, \$12,000,000, while the timber used each year in making wagons and agricultural implements is valued at more than \$100,000,000. Two-thirds of the lumber used is coniferous wood, which includes pine, spruce and hemlock. The growing scarcity of these woods has led to increased use of other woods. Nevertheless, it has become apparent that while white pine will be cut in the United States for many decades, as owners of the stumpage control their holdings, the enormous amounts which have hitherto been cut annually cannot be had beyond the next five or six years, even with Canada to help in eking out our deficiencies. Official estimates declare that within the next decade the white pine supply will be practically exhausted.

From the statistics of the cut it appears that since 1873, the stupendous amount of 154 billion feet, B. M., and 83 billion shingles, or altogether in round numbers 165 billion feet of white pine, has been cut in the states of Michigan, Wisconsin, and Minnesota; and this total may be readily increased by allowing for cuts in the other parts of the country, to over 200 billion feet, B. M., which this single species has yielded, an amount equal to the product of 2,000,000 acres of well-stocked, well-kept pine forest. The wood pulp mills alone consume 800 million feet of lumber, having increased ninefold since 1887. The total consumption of coniferous woods is placed at 20 billion feet per year. As for the supply of this most essential class of lumber, according to the chief of the United States forestry bureau, about 400 billion feet are standing, including the supplies in the southern states (270 billions). At present rate of cutting, this amount would last only 20 years. Adding the large supplies on the Pacific coast (1000 billions standing) the total visible supply would be exhausted in from forty to fifty years. It is thought that the loss by fire offsets the gain in new growth. The conclusion of the matter is that economy in consumption will be necessary. The people of the United States consume of coniferous wood somewhat over 400 feet, B. M., per capita, while England, which probably has the lowest per capita consumption of wood among civilized nations, being almost entirely dependent upon importation, is able to get along with one-third that amount, and Germany's consumption remains below 150 feet, B. M., per capita of all kinds of sizeable wood. The margin within which, therefore, we can curtail our requirement is large enough to lengthen out our supplies considerably.

When you're good to others you're best to yourself.

The importations from Canada, while rapidly increasing, are small in comparison with the home consumption. The importations of all kinds of forest products and wood manufactures have been hardly over 1 per cent of our own production, and if we confine the inquiry to coniferous material only, the proportion of the importation of this class of materials rises to hardly 5 per cent of our home production of the same kinds.

PINE LUMBER AND SHINGLES, PRODUCT SINCE 1873.

(In millions.)

	W. Pine Lumber, Northwest.	Shingles, Northwest.	Pine, spruce, hemlock cut in Maine. Kennebec Region	Penobscot Reg'n.
1896	5,538	1,857	466	
1895	7,093	2,465	166	144
1894	6,763	3,022	174	161
1893	7,599	3,421	271	129
1892	8,902	4,280	225	160
1891	7,943	3,755	226	165
1890	8,664	4,488	242	179
1885	7,053	4,258	183	143
1880	5,651	2,973	141	124
1873	3,994	2,277	179	179

COMMERCE IN WOOD AND WOOD MANUFACTURES BETWEEN THE UNITED STATES AND CANADA.

(In round millions of dollars.)

	1896	1895	1894	1893	1892
Canada to United States.....	15	12	12	14	12
United States to Canada.....	3	3	3	2	2

LOGS IMPORTED FROM CANADA.

	Pine logs.			Spruce logs.			Hemlock logs.		
	Quan- tity, M feet.	Value.	Price per M feet.	Quan- tity, M feet.	Value.	Price per M feet.	Quan- tity, M feet.	Value.	Price per M feet.
1884.....	974	\$8,012	\$8.23	6,820	\$31,793	\$4.66	4,818	\$19,168	\$3.98
1885.....	380	2,300	6.05	11,165	49,449	4.43	3,629	14,752	4.07
1886.....	2,869	24,452	8.52	17,541	81,874	4.67	6,881	28,076	4.08
1887.....	6,350	49,242	7.75	17,526	88,773	5.65	4,206	17,447	4.15
1888.....	468	3,875	8.28	20,714	99,450	4.80	4,512	18,383	4.07
1889.....	10,839	94,287	8.70	20,360	137,298	6.74	6,420	24,261	3.78
1890.....	32,144	261,626	8.14	26,073	156,898	6.02	2,952	12,288	4.17
1891.....	36,699	313,281	8.54	28,494	158,334	5.56	2,210	9,802	4.44
1892.....	73,963	651,540	8.81	23,404	141,168	6.02	5,057	21,426	4.24
1893.....	127,084	1,056,355	8.32	21,103	123,254	5.84	5,880	26,036	4.43
1894.....	277,947	2,359,951	8.49	17,926	107,250	6.00	5,217	19,713	3.77
1895.....	212,231	1,860,319	8.77	25,095	90,990	3.64	2,217	9,017	4.06
1896.....	157,400	1,423,489	9.06	15,182	86,075	5.67	4,761	18,607	3.90

Facts About Lumber.

The best time to cut trees for lumber is in midwinter or in midsummer, when growth is at a pause.

Best timber grows in a rather heavy but gravelly soil, and in the center of a forest.

The hardest part of a tree is on the north side.

Good timber trees have branches vigorous to the top and well leaved out; clear, healthy, clinging bark, and a well-rounded top.

Sapwood is a light-colored layer next the bark. Second sap is composed of alternate sap and sound wood. Sapwood is light and weak if from an old tree, but heavy and strong if from a young tree. Sapwood shrinks more and decays more easily than heartwood.

Wood from aged trees, dead trees and twisted trees is usually of little value.

A young tree makes heavier and stronger wood than an old tree, hence second growth is often better than old timber.

The butt cut of hard pine weighs 20 per cent more and is 30 per cent stronger than the top cut.

The heaviest stick of the same kind, when seasoned, is the strongest; a piece of seasoned pine weighing 45 pounds to the cubic foot is one-third to one-half stiffer and stronger than one weighing 30 pounds.

Broad-ringed oak and pine, with broad, dark bands of summer wood, are strongest.

Crossgrain and knots reduce both stiffness and strength.

A crossgrained piece will scarcely support one-twentieth of the load that a straight-grained piece of the same kind will support.

In dry locations, the most durable woods are cedar, oak, yellow pine, chestnut. Larch and hard pine will stand decay fairly well, while oak, elm, ash, fir, if driven into the ground, rot within a few years.

The age of a tree in years is indicated by the number of rings in the wood.

Trees intended for timber should be allowed to reach full maturity.

After cutting as close to the ground as possible, remove the bark and raise from the ground.

Closegrained woods as a rule are more durable.

Doubling the length of a board or timber reduces the stiffness eightfold and the strength one-half.

Doubling the width of a board doubles the stiffness and strength.

Doubling the thickness of a board, or the depth of a timber, increases the stiffness about eightfold and the strength fourfold.

If, therefore, it is desired to double the length and retain the same stiffness, it is necessary to double the thickness or depth.

Weight for weight, a stick of pine is stronger and stiffer than a solid iron or steel of same shape and length.

A joist 2 by 6 inches is three times as stiff as one 2 by 4. A joist 2 by 8 inches is eight times, and one 2 by 12 is twenty-seven times as stiff.

A good hard-pine joist 2 by 4 inches and 10 feet long may support 2,000 pounds in the middle, but it can safely be trusted only to the extent of 400 pounds.

Strength and durability are increased by seasoning lumber for from two to four years under cover, with good circulation of air.

Stumps decay about in the following order: Hardwood, spruce, hemlock, cedar, pine.

List of Shade, Timber and Ornamental Trees.

(Houston.)

[Those who intend to plant trees can usually make their selections from the following list from Edwin J. Houston's "Outlines of Forestry."]

DECIDUOUS TREES

(Thomas Meehan's list for the northeast.)

European cork maple	Small-fruited hickory	Massoniana.	White willow.
Norway maple.	Large-fruited hickory	Pinus pungens.	Weeping willow.
European sycamore	White hickory.	Red pine.	Japan willow.
maple.	American chestnut.	Pitch pine.	Laurel-leaved willow.
Am. horse-chestnut.	American holly.	Yellow pine.	Golden-bark willow.
Eur. horse-chestnut.	Red cedar.	White pine.	American elm.
Ailanthus.	Balsam fir.	Japan Cypress.	English elm.
Eur. white birch.	Australian pine.	American arbor vitæ.	Slippery elm.
Shell-bark hickory.	Pinus banksiana.	Yellow locust.	American cork elm.
Bitternut hickory.	Japan pine.	Maiden hair tree.	
	Corsican pine.	Ginkgo.	

EVERGREENS.

White spruce.	Scarlet oak.	Yellow buckeye.	Catalpa.
Hemlock.	Japan oak.	Chinese cork-tree.	Western catalpa.
Douglas spruce.	Spanish oak.	Planera.	Nettle-tree.
Norway spruce.	Laurel oak.	Buttonwood or Amer-	Cherry.
Colorado blue spruce.	Mossy cup.	ican plane.	Double-flowering
European larch.	Black Jack oak.	Oriental plane.	cherry.
Sweet gum.	Post oak.	Honey locust.	Wild red cherry.
Sophora japonica.	Pin oak.	Kentucky coffee.	White or large-flower-
Deciduous cypress.	Willow oak.	Hovenia.	ing dogwood.
American linden.	Rock chestnut oak.	Idesia.	American persimmon
European linden.	English oak.	Butternut.	American beech.
Silver poplar.	Red oak.	English walnut or Ma-	European beech.
Balsam poplar.	Black oak.	deira nut, south of	White ash.
Lombardy poplar.	White mulberry.	Philadelphia.	European ash.
Populus grandiden-	American red mul-	Common tulip tree,	Blue ash.
tata.	berry.	or tulip poplar.	Black ash.
Carolina poplar.	Ash-leaved maple.	Osage orange.	Green ash.
White oak.	Sour gum.	Magnolia or cucumber	Katsura.
Swamp white oak.	Ironwood.	tree. Macrophylla.	
Turkey oak.	Empress-tree.	Umbrella-tree.	

List for the North—Annual report of the Wisconsin State Horticultural Society.

EVERGREENS.

For general planting in the order named:

White pine.	White spruce.	Balsam fir.	Scotch pine.
Norway spruce.	Arbor vitæ.	Austrian pine.	
For ornamental planting in the order named:			
Hemlock.	Siberian arbor vitæ.	Dwarf pine.	Red or Norway pine.
Red cedar.			

DECIDUOUS TREES.

For timber:

White ash.	Hickory.	Butternut.	European larch.
Black walnut.	Black cherry.	White oak.	American larch.

For street shade-trees:

White elm.	Basswood or linden.	Ashleaf maple (Acer	Norway maple.
Hard maple.		negundo.)	Hackberry.

For lawn planting:

Weeping cut-leaved	Horse-chestnut.	Oak-leaved mountain	Weeping mountain
birch.	European mountain	ash.	ash.
American mountain	ash.	White birch.	Weeping poplar.
ash.	Wisconsin weeping	Weeping golden-	
Green ash.	willow.	barked ash.	

For the Middle West.

INITIAL STEP IN FOREST CULTURE. (Kern.)

Cotton-wood.	Soft maple.	White American ash.	Sugar maple.
Black walnut.	Box elder.		

SECOND STEP.

The introduction of catalpa species. At present the above with black walnut and white ash are the leading trees.

Tulip-tree (Yellow	The leading	white Over-cup oak.	White hickory (under
poplar).	oak species.	Burr oak.	certain conditions).
	White oak.	Post oak.	

OF CONIFERS.

Bald cypress (for al-	Red cedar.	Black cherry.	European alder.
luvial lowlands).	White pine.		

SOFT WOODS.

Soft maple.	Birch (both nigre and	Willows.	Plantanus, elms, syc-
Box elder.	lenta).	Poplars.	amore.

When an anvil, hold you still—When a hammer, strike your fill.

EVERGREENS.

American white Norway spruce. Scotch and Aus. pine. European larch.
spruce.

HARDWOOD VARIETIES.

For the prairie region (Nebraska State Board of Agriculture).

Black walnut. Honey locust. Kentucky coffee-tree. Burr oak.
White ash. Black cherry. Hard maple. White oak.
Black locust.

SOFT WOODS.

Soft maple. Cottonwood. Speciosa catalpa. Tea's hybrid catalpa.
Box elder.

EVERGREENS.

Red cedar. Australian Pine. American larch. European larch.
Scotch pine. White pine.

List for the South.

Charles Mohr, agent for the Forestry Division of the U. S. Department of Agriculture, Mobile, Ala.

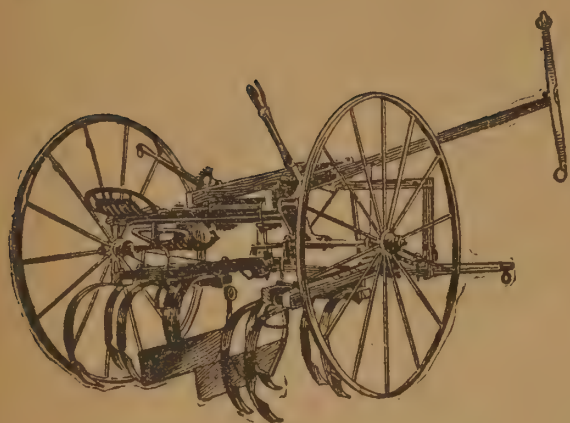
White cedar.	Spanish oak.	Pecan, hickoria, pecan.	Osage orange.
Red cedar.	Throughout on lighter soils.	Wild cherry.	White ash. Upper
Bald cypress.		Sweet gum.	district.
Long-leaved pine.	Water oak. Of value for fuel only.	Black locust.	Green ash.
Loblolly pine.		Honey locust.	Red maple.
Cuban pine.	Willow oak. Rapid growth on wet or dry light soil. Timber more valuable.	Red mulberry, morus rubra.	Silver maple.
Short-leaved pine.		Shade-loving.	White elm. Upper
White oak.		Magnolia, magnolia grandiflora.	district.
Cow oak. Rich, alluvial soil.	Beech.		Slippery elm.
Chestnut oak.	Chestnut. In dry, somewhat silicious soils throughout.	Cucumber tree, magnolia acuminata.	Water elm. Alluvial, wet soil.
Live oak. Lower districts.	Shell-bark hickory. Upper and central districts.	In well-drained, deep, and lighter loamy soil.	American linden. Central to upper
Red oak.		Tulip-tree.	district.
Black oak. Gravelly uplands.	Mocker nut.		Sycamore.
			Cottonwood.

For the Southwest.

(Dolley.)

Black birch, 10 to 20 ft.	Douglas spruce, 150 ft.	Candel-nut-tree, 30 ft.	Barbadoes cherry.
Purple willow, 6 to 15 ft.	Spruce, 60 to 100 ft.	The carob or John's bread-tree.	St. Mammea apple, or
Brittle willow, 60 to 80 ft.	Balsam spruce, 60 to 100 ft.	Akee.	St. Domingo apricot, 60 to 70 ft.
Blue willow and golden willow.	Pine, 60 ft.	Alligator pear.	Mango.
Black poplar, 30 to 40 ft.	Yellow pine, 80 to 100 ft.	Almond, 15 ft.	Cattley or strawberry guava.
American aspen, "quaking asp," 20 to 30 ft.	Ginkgo, 40 to 80 ft.	Pecan nut.	Pomegranate.
Lombardy poplar.	The pinon or nut pine, 10 to 15 ft.	Spanish chestnut.	Tamarind, 80 ft.
Necklace poplar, 150 ft.	Red Wood, 200 to 300 ft.	English walnut, or Madeira nut, 60 ft.	Jujuba.
North American red cedar, or pencil cedar, 60 to 90 ft.	Blue gum.	The sapodilla or naseberry.	The bead-tree, or pride of India, 30 to 40 ft.
Small balsam fir, or white fir, 80 to 100 ft.	Rose apple, or janro-sade, 20 to 30 ft.	The bael-fruit, elephant apple, mardo, or Bengal quince.	The gutta-percha, 60 to 70 ft.
Red fir.	Catalpa, 30 to 50 ft.	Cashew-nut.	Ballata.
Sacred fir of Mexico.	Pepper-tree, or peruvian mastick-tree.	Jamaica apple, 20 to 25 ft.	Karite or butter-tree.
Common hemlock, 50 to 80 ft.	The loquat or mespilus.	Sour-sop, 15 to 20 ft.	Cinchona.
	The Sumatra camphor tree.	Star apple, 30 to 40 ft.	Soap-bark tree, 50 to 60 ft.
		Fig.	

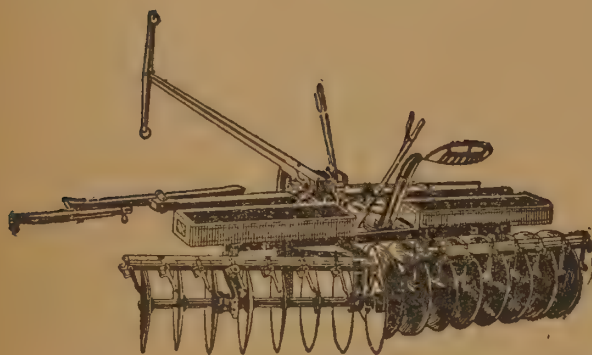
Lawyers, preachers, doctors,—eggs, more are hatched than ever come to perfection.



The New American

is the most useful and economical Harrow and Cultivator a farmer can buy. Made with spring teeth, "Eagle Claws," or shovels. Has attachments for sowing grain and grass seed,

**Harvesting Beans,
Cutting Stalks,
Planting Corn, Beans, Etc.**



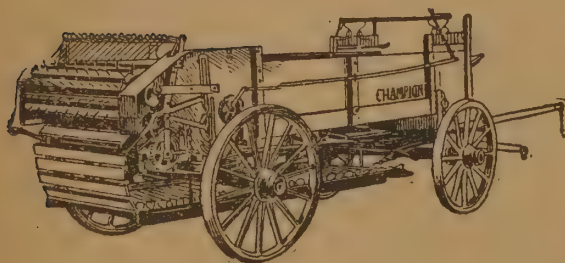
The Detroit Disc

STEEL FRAME,

Double Levers, Ball Bearings (Chilled),

Cuts Even Depth,

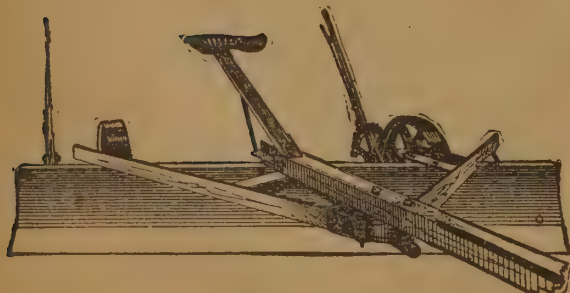
Light Draft. Easy to Operate.



NEW AMERICAN Manure Spreader

A PERFECT SPREADER

At a low price. Attached to any wagon.
Easily handled and works perfectly.



Detroit Road Leveler.

SIMPLE, STRONG, DURABLE, ADJUSTABLE,

Easy to operate; does effective work and is
inexpensive.

Write for particulars and prices.

American Harrow Co., Detroit, Mich.

MISCELLANEOUS.

Society to Suppress Insect Pests and Plant Diseases.

In answer to a call issued by the officers of the Ohio state horticultural society, there convened in Washington, D. C., March 5, 1897, over 50 delegates, representing the various agricultural and horticultural associations, state experiment stations and all kindred organizations from all parts of the United States. The object of the convention was to consider the best means of securing national legislation and supplementary uniform state laws, which will prevent the introduction and spread of destructive insects and fungi. A permanent organization was formed, with the following officers: Chairman, E. H. Cushman of Euclid, Ohio; vice chairman, J. H. Hale of South Glastonbury, Connecticut; secretaries, Wesley Webb of Dover, Delaware, and M. J. Daniels of Riverside, California. A committee on legislation, consisting of 10 members, was appointed.

After due deliberation, a bill was drawn up and has been presented to congress, providing for the inspection and treatment of trees, plants, buds, cuttings, grafts, scions, nursery stock and fruit imported into the United States, or any such stock which may have been grown in any state and later becomes subject to inter-state commerce.

The bill, if it becomes a law, authorizes the secretary of agriculture, at the expense of the owner, to place and retain in quarantine at specified entry ports all imported nursery stock, and prescribes regulations for its inspection. Inspectors appointed by the secretary ascertain whether such stock is affected by any seriously injurious insect or fungous disease. If found infested, the stock is to be treated at the expense of the owner, or shall be destroyed in case its condition warrants destruction. The owner, however, may appeal from the decision of the inspector to the secretary of agriculture, provided such appeal is taken within three days after inspection. If the nursery stock is found free from diseases or insects, a certificate to that effect is issued, which releases the stock from quarantine, either at a port of entry or in inter-state commerce. A penalty is provided for forging or defacing any such certificate. Nursery stock from countries which have already provided competent inspection and treatment shall be admitted without inspection. Nursery stock grown in any one state and to be transported to another shall be inspected and treated prior to shipment. Transportation companies receiving and transporting stock from one place to another without its freedom from disease being properly certified to by the inspectors, shall be guilty of a misdemeanor the same as though they were owner. The one exception to shipment without examination and treatment is that scions or other small parts of the plant may be sent through the mails or otherwise transported for scientific purposes. It also provides that if a corporation, individual, foreign country, state, territory or district provides its own inspection and convinces the secretary of agriculture that it is adequate, all supervision of stock from that source is removed. The bill carries an appropriation of \$50,000 for putting the law into effect.

TO CLEAN CIDER BARRELS.—Pour in lime water, and then insert a trace chain through the bung hole, remembering to fasten a strong cord on the chain so as to pull it out again. Shake the barrel until all the mold inside is rubbed off. Rinse with water.

Practical Measurement of Land.

To find the number of acres in any rectangular piece of land, multiply the length and breadth in rods together, and divide by 160 (the number of square rods in an acre), and the result will be the required answer.

When one side and perpendicular to that side from the opposite angle are given, take one-half the product of the side and perpendicular, and divide by 160.

When three sides are given, from half the sum of the three sides subtract each side separately; multiply the half sum and the three remainders together; the square root of the product divided by 160 will give the number of acres in the field.

When the piece of land is in the shape of a trapezoid, take one-half the product of the sum of the parallel sides and the perpendicular between those sides, and divide by 160.

To find the area of any straight-sided piece of land, divide the latter into convenient parts, find the area of every part, and the sum will be the area of the field.

In general, the parts into which the field can be most conveniently divided will be triangles, but in some cases we may have a rectangle or a trapezoid, whose areas may be found by the preceding rules. The area of a right-angle triangle equals one-half the product of the two short sides.

TO LAY OFF A PIECE.

The facts above given will make it possible to solve the common problems of land measurement. Most fields, in fact, are in the form of a square or a rectangle, and a common task is to lay off a piece of a certain area and extending the whole length of the field. In such a case the convenient way is to measure the length of the field with a nine-foot pole. Then divide the area required, expressed in yards, by the length of the field and the result will give the width in yards to be laid off. Thus, if a field is 70 yards long, a piece 69 yards and five inches wide must be laid off to include one acre, while in a field 100 yards long, an acre will be 48 yards 1 foot 3 inches wide, and so on.

One acre contains 160 square rods, 4,840 square yards, 43,560 square feet. One rod contains $30\frac{1}{4}$ square yards, $272\frac{1}{4}$ square feet. One square yard contains nine square feet. The side of a square must measure as follows to contain—

	Feet.	Rods.	Paces.
Ten acres,	660	40	
One acre,	208.71	12.65	64
Half acre,	147.58	8.94	45
Third acre,	120.50	7.30	37
Fourth acre,	104.38	6.32	32
Eighth acre,	73.79	4.47	$22\frac{1}{2}$

To double the length of the side makes four times the area of the field.

Convenient Land Measures.

10 Rods by	16 Rods,	1 Acre.
8 "	20 "	1 "
5 "	32 "	1 "
4 "	40 "	1 "
5 Yards by	968 Yards,	1 "
10 "	484 "	1 "
20 "	242 "	1 "
40 "	121 "	1 "
220 Feet by	198 Feet,	1 "
110 "	396 "	1 "
60 "	726 "	1 "
120 "	363 "	1 "
300 "	145.2 "	1 "
400 "	108.9 "	1 "

TO TAN WOODCHUCK HIDES.—The best way to tan woodchuck skins with the hair on is to sprinkle salt and alum on the hides, roll them up and let them lie until the salt is melted. To tan without the hair on, put the hide into a bucket of ashes and water, let it lie until the hair comes off fully, then take the hair off, then put it (the skin) into soft soap, let it lie there until the lye eats the flesh off, then take it out and rub it dry over a smoke.

What is a Day's Plowing?

While cutting a furrow nine inches wide, the plowman walks just about eleven miles while he is turning over an acre—that is, without reckoning the journey from the stable to the field and back again. It is one of the advantages of long fields that the time occupied in turning at the ends is so much less than on shorter stretches and smaller fields. In plowing an acre 352 yards long, cutting a nine-inch furrow, the man goes 27 1-2 times around, and turns on the headland 55 times. If we allow one minute for turning, the time thus occupied is equal to 55 minutes, or say an hour's work—the hardest of the day, too. This would be a field of average length. When a field is 179 yards long, the number of turnings is doubled, and the amount of hard work and time absorbed is 1 hour and 50 minutes. In a field 117 yards long, the plowman turns 165 times in order to cut through an acre with a nine-inch furrow; and allowing one minute for each turning, 2 3-4 hours are occupied in that operation.

The plow pace, to do good, steady work, varies from 1 1-2 to 2 miles per hour. Applying these figures to the eleven miles walked in plowing an acre, at the rate of 1 1-2 miles an hour, takes 7 1-8 hours. With a 10-inch furrow there is one mile less of walking, which may be computed as half an hour to three-quarters, according to the estimate of traveling pace. With a 10-inch furrow on light land, where the furrows are 352 yards long, from six to seven hours are occupied per acre, at the ordinary pace of two miles per hour. Thus, in short fields a great amount of extra work becomes necessary, and time is lost in turning. So an acre may require eight or nine hours. Plows cutting a double furrow, or three, or four or more furrows at the same time, may be estimated on the same lines. These statements apply only to the conditions of the older sections of the country. Upon large farms with plows and teams to correspond, a much larger day's plowing can be done.

Farm Capital and Products.—(Mulhall.)

Compared by nations.

	Farming Capital. Millions.	Farming Capital Per hand.	Bu. of Grain peracre.	Val. Farm products Y'rlly. Mils	Val. per farm hand of product	Val. per acre of product.
Great Britain.....	\$9,970	\$3,950.40	34	\$1,104	\$436.80	\$206.40
France.....	14,846	2,064.00	20	1,916		163.20
Germany.....	12,038	1,286.40	18	2,001		139.20
Russia.....	13,008	379.20	12	2,592		24.00
Austria.....	8,626	662.40	19	1,531		100.80
Italy.....	6,715	979.20	11	879		129.60
Spain.....	5,818	1,425.60	11	648		110.40
Portugal.....	787	912.00	11	124		67.20
Sweden, Norway.....	1,334	950.40	23	230		86.40
Denmark.....	1,219	3,048.00	23	168		187.20
Holland.....	1,416	3,072.00	30	172		182.40
Belgium.....	1,699	2,361.60	31	211		302.40
Switzerland.....	826	1,680.00	11	96		153.60
Turkey, etc.....	2,438	657.60	15	398		57.60
Greece.....	523	792.00	13	67		67.20
All Europe.....	81,264	940.80	16	12,312	134.40	72.00
United States.....	19,882	1,848.00	24	3,920	364.80	57.60
Canada.....	1,464	1,286.40	20	273		43.20
Australia.....	1,882	4,272.00	12	336		
Aggregate.....	\$104,492	\$1,056.00	18	\$16,842	\$168.00	\$43.20

A farmer's idle springtime is well advertised in autumn.

Farmers' Institutes.

The following are the institute statistics in those states which have a fully organized and centralized system.

STATE.	Officer in Charge.	Usually yearly No. of Inst's held.	Usual Amount Exp'nded
Maine.....	Sec. B. W. McKeen, Augusta.....	40	\$3,000
Connecticut.....	Sec. T. S. Gold.....	14	.....
Massachusetts.....	Sec. Wm. R. Sessions, Boston.....	125	.....
Vermont.....	Sec. State B'd of Ag.....	Each county	5,000
New York.....	F. E. Dawley, Fayetteville.....	200	15,000
Pennsylvania.....	Prof. John Hamilton, Harrodsburg.....	150 to 175	9,500
Ohio.....	W. W. Miller, Columbus.....	200	10,425
Iowa.....	.....	20	1,000
Indiana.....	W. C. Latta, Lafayette.....	100	5,000
Illinois.....	Oliver Wilson, Magnolia.....	104	12,500
Michigan.....	R. L. Butterfield, Ag. Col.....	65	5,000
Wisconsin.....	Geo. McKerron, Madison.....	150	12,000
Minnesota.....	O. C. Gregg, Minneapolis.....	.....	13,500
Missouri.....	J. R. Ripley, Columbia.....	40	4,000
Nebraska.....	F. W. Taylor, Lincoln.....	50	.....
Ontario.....	F. W. Hudson, Toronto.....	300	7,700
Manitoba.....	R. A. E. Leech, Brandon.....	.....	1,500

Legal Milk Standards of Various States.

	Total, Solids, %	Fats, %
District of Columbia,	12	3
Georgia,	12	3.5
Iowa,	.....	3
Maine,	12	3
Mass (Apr. to Aug., inclu.)	12	3
" (Sep. to Mar., inclu.)	13	3.7
Michigan,	12.5	3
Minnesota,	13	3.5
New Hampshire,	13	.....
New Jersey,	12	.....
New York,	12	3
Ohio (May and June)	11.5	2.88
" (July to Apr. inclusive)	12	3
Oregon,	12	3
*Pennsylvania,	12.5	3
Rhode Island,	12	2.5
South Carolina,	11.5	3
Vermont (May and June)	12	.....
" (July to April, inclu.)	12.5	3.25
Washington,	.....	3
Wisconsin,	.....	3

*Applies only to cities of the second class.

The Maine law reads:

"Whoever acting for himself, or as the employe of another, knowingly or wilfully sells or offers for sale, milk from cows diseased, sick, or fed upon the refuse of breweries or distilleries, or upon any substance deleterious to its quality, or milk to which water or any foreign substance has been added; or sells or offers for sale as pure milk, any milk from which cream has been taken, forfeits twenty dollars for the first, and fifty dollars for every subsequent offence, to be recovered for the town where the offence is committed, by complaint and indictment.

Resources of Uruguay.

Although the smallest of the South American States, Uruguay has excellent climate, soil and geographical situation and its population has trebled since 1860. Its property resources are as follows:

	Millions of dollars.
Farms.....	\$200
Houses.....	155
Railways.....	55
Sundries.....	175
Total.....	\$585

Bricks for Chimneys.

SIZE.	Inside measure.	No. bricks per foot of length.
16x16 in.	8x8 in.	30
20x20 in.	12x12 in.	40
16x24 in.	8x16 in.	40
20x24 in.	12x16 in.	45

Sizes of Nails.

	Length in.	No. in one lb.
3-penny	1	557
4 "	1 1/4	535
5 "	1 3/4	282
6 "	2	177
7 "	2 1/4	141
8 "	2 1/2	101
10 "	2 3/4	68
12 "	3	54

A farmer's trade-mark is stamped on his fields.

Measuring Hay.

There is so much difference in the quality of hay that it is impossible to decide the matter accurately. It is generally believed that 400 cubic feet in a large bay, taking it right through, or 500 on a long, wide, deep scaffold, will represent a ton. When the hay is cut early, is stored evenly over the mow, is well trodden when stowed away, and is allowed to settle two or three months before measuring, perhaps it will hold out at the above figures. When grass is allowed to stand until nearly ripe before cutting, it will occupy nearly if not quite 25 per cent. more bulk, especially on a scaffold, than the early cut, and require about that many more cubic feet for a ton. Coarse hay, as timothy and clover, will not weigh as heavy, bulk for bulk, as that which is fine, like common prairie or wild hay. It is much more satisfactory to both buyer and seller to weigh the hay when possible.

In estimating by measurement, multiply together the figures representing the length, width and height of hay, and divide the product by the number of feet in a ton. For example, if the hay is forty feet long, 16 feet wide and 18 feet from the bottom to the top of the mow, and the bulk agreed is 400 feet to the ton, the mow will contain 40 times 16 times 18, equals 11,520 cubic feet; 11,520 divided by 400 equals 28 tons and 350 cubic feet, or 28 4-5 tons. It would require considerably more than 400 cubic feet from the top of such a mow for a ton, while at the bottom it will have become packed so solidly from the great weight above it that 400 cubic feet will weigh considerably more than 2,000 pounds.

TABLE FOR FINDING THE VALUE OF HAY.

Lbs.	\$4.	\$5.	\$6.	\$7.	\$8.	\$9.	\$10.	\$11.	\$12.	\$13.	\$14.	\$15.	\$16.	\$17.	\$18.
50	.10	.13	.15	.18	.20	.23	.25	.28	.30	.33	.35	.38	.40	.43	.45
70	.14	.18	.21	.25	.28	.32	.35	.39	.42	.46	.49	.53	.56	.60	.63
90	.18	.23	.27	.32	.36	.41	.45	.50	.58	.59	.63	.68	.72	.77	.81
100	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90
300	.60	.75	.90	1.05	1.20	1.35	1.50	1.65	1.70	1.95	2.10	2.25	2.40	2.55	2.70
400	.80	1.00	1.20	1.40	1.60	1.80	2.00	2.20	2.40	2.60	2.80	3.00	3.25	3.40	3.60
500	1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.75	4.00	4.25	4.50
700	1.40	1.75	2.10	2.45	2.80	3.15	3.50	3.85	4.20	4.55	4.90	5.25	5.60	5.95	6.30
900	1.80	2.25	2.70	3.15	3.60	4.05	4.50	4.95	5.40	5.85	6.30	6.75	7.20	7.65	8.10
1,000	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00
1,200	2.40	3.00	3.60	4.20	4.80	5.40	6.00	6.60	7.20	7.80	8.40	9.00	9.60	10.20	10.80
1,500	3.00	3.75	4.50	5.25	6.00	6.75	7.50	8.25	9.00	9.75	10.50	11.25	12.00	12.75	13.50
1,600	3.20	4.00	4.80	5.60	6.40	7.20	8.00	8.80	9.60	10.40	11.20	12.00	12.80	13.60	14.40
1,700	3.40	4.25	5.10	5.95	6.80	7.65	8.50	9.35	10.20	11.05	11.90	12.75	13.60	14.45	15.30
1,800	3.60	4.50	5.40	6.30	7.20	8.10	9.00	9.90	10.80	11.70	12.60	13.50	14.40	15.30	16.20
1,900	3.80	4.75	5.70	6.65	7.60	8.55	9.50	10.45	11.40	12.35	13.30	14.25	15.20	16.15	17.10
2,000	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	16.00	17.10	18.00

The price per ton of 2,000 pounds being known, it is very easy to find the value of any fraction of a ton at \$4 to \$18 per ton. If a farmer has 1,565 pounds of hay on his wagon and the dealer has bought it at \$7 per ton, he finds by looking across the table from 1,500 pounds to the column at the top of which is \$7, that the value of 1,500 pounds at \$7 per ton is \$5.25, the value of 60 pounds .21, and the value of 5 pounds .02, making a total of \$5.48. If the price was \$7.50 per ton, he would also find the value of 1,565 pounds at 50 cents per ton, and add to \$5.48 the value at \$7 per ton. To find the value at 50 cents, first find it at \$5, and take 1-10 of that sum. The value of 1,500 tons at \$5 is \$3.75, at 50, .375. The value of 60 pounds at \$5 is .15, and at 50 cents it is .015, making the value of 1,565 pounds at 50 cents, 39 cents, which sum added to \$5.48, gives \$5.87, the value of 1,565 pounds at \$7.50.

If the cap fits, wear it.

To find the value of any fraction of a ton at \$7.40, \$7.60, \$7.70, \$7.80, or \$7.90, find the value at \$7 and add to it one-tenth the value at \$4, \$6, \$7, \$8 or \$9.

To find the value at \$7.30, add 1-30 of the value at \$9 to the value at \$7.

To find the value at \$7.25, add 1-20 of the value at \$5 to the value at \$7, and to find it at \$7.20, add 1-20 of the value at \$4 to the value at \$7. To find the value at \$7.10, add 1-100 of the value at \$10 to the value of \$7.

TO FIND THE NUMBER OF TONS OF HAY IN A MOW.

Multiply the length in yards by the height in yards, and that by the width in yards, and divide the product by 15; the quotient will be the number of tons; this is only a rough approximation, for hay varies greatly in weight, according to the way in which it was put in, its dryness at that time, and the length of time it has been lying, etc.

WEIGHT AND COST OF THE SEED OF FOUR MIXTURES.

Each designed to cover an acre upon the basis of 10,000,000 plants, compiled from table on Page 242.

Mixture.		Number of seeds.	Pounds.	Cost.
A.	Timothy	6,700,000	5.72	\$0.57
	Alsike.....	1,650,000	2.33	.30
	White clover.....	1,650,000	2.23	.62
	Total.....	10,000,000	10.28	1.49
B.	Timothy.....	5,000,000	4.27	.43
	Kentucky blue grass.....	1,000,000	.41	.05
	Orchard grass.....	700,000	1.21	.19
	Alsike	1,650,000	2.33	.30
	White clover.....	1,650,000	2.23	.62
	Total.....	10,000,000	10.45	1.59
C.	Timothy.....	4,000,000	3.42	.34
	Kentucky blue grass.....	1,200,000	.50	.06
	Orchard grass.....	1,000,000	1.73	.28
	Meadow foxtail.....	500,000	.55	.15
	Alsike.....	1,650,000	2.33	.30
	White clover.....	1,650,000	2.23	.62
	Total.....	10,000,000	10.76	1.75
D.	Red clover.....	2,790,000	10.00	1.40
	Alsike.....	2,121,000	3.00	.39
	Timothy.....	3,089,000	2.64	.26
	Redtop.....	2,000,000	3.31	.40
	Total.....	10,000,000	18.95	2.45

LIQUID GLUE.—One part phosphoric acid, specific gravity 1.20, diluted with two parts water, is nearly neutralized with ammonium carbonate, one part of water added, and then, in a porcelain vessel, sufficient glue dissolved in the liquid to obtain a syrupy consistency. It must be kept in well closed bottles. The addition of glycerine or sugar would cause the glue to gelatinize.

A GOOD DURABLE WHITEWASH.—Take half a bushel of freshly burnt lime, slake it with boiling water; cover it during the process, to keep in the steam. Strain the liquid through a fine sieve, and add to it 7 pounds of salt, previously well dissolved in warm water; 3 pounds of ground rice, boiled to a thin paste and stirred in boiling hot; 1-2 pound of powdered Spanish whiting; 1 pound of clean glue, which has been previously dissolved by soaking it well, and then hanging it over a slow fire in a small kettle, within a large one filled with water. Add 5 gallons of hot water to the mixture, stir it well, and let it stand a few days, covered from dirt. It must be put on quite hot. For this purpose it can be kept in a kettle on a portable furnace.

Weight and Height at Various Ages.

MALES.			FEMALES.		
Age.	Feet.	Lbs.	Age.	Feet.	Lbs.
0	1.64	7.06	0	1.62	6.42
2	2.60	25.01	2	2.56	23.53
4	3.04	31.38	4	3.00	28.67
6	3.44	38.80	6	3.38	35.29
9	4.00	49.95	9	3.92	47.10
11	4.36	59.77	11	4.26	56.57
13	4.72	75.81	13	4.60	72.65
15	5.07	96.40	15	4.92	89.04
17	5.36	116.56	17	5.10	104.34
18	5.44	127.59	18	5.13	112.55
20	5.49	132.46	20	5.16	115.30
30	5.52	140.38	30	5.18	119.82
40	5.52	140.42	40	5.18	121.81
50	5.49	139.96	50	5.04	123.86
60	5.38	136.07	60	4.97	119.76
70	5.32	131.27	70	4.97	113.60
80	5.29	127.54	80	4.94	108.80
90	5.29	127.54	90	4.94	108.81

Mean weight...103.66 | Mean weight...93.73

Yards of Wire Per Bundle.

Wires all weigh 63 lbs to the bundle.

Wire gauge.	Yds. in bundle.	Wire gauge.	Yds. in bundle.
No. 0.....	71	No. 11.....	529
" 1.....	91	" 12.....	700
" 2.....	105	" 13.....	893
" 3.....	121	" 14.....	1142
" 4.....	143	" 15.....	1468
" 5.....	170	" 16.....	1954
" 6.....	203	" 17.....	2540
" 7.....	239	" 18.....	3150
" 8.....	286	" 19.....	4085
" 9.....	342	" 20.....	4912
" 10.....	420		

Barbed Wire Fences.

Each pound of wire measuring one rod (16½ feet).

	1 Line.	2 Lines.	3 Lines.
1 square acre, 50½ lbs	101½ lbs	152 lbs	
1 side sq. acre, 12½ "	25½ "	38 "	
1 sq. half-acre, 36 "	72 "	108 "	
1 square mile, 1280 "	2560 "	3840 "	
1 side sq. mile, 320 "	640 "	960 "	
1 rod in length, 1 "	2 "	3 "	
100 rods in l'th, 100 "	200 "	300 "	
100 ft in l'th, 6 f-16 "	12½ "	18 3-16 "	

Loads of Various Materials.

A load of rough timber is 40 feet.
 A load of square timber is 50 feet.
 A load of 1-inch plank is 600 square feet.
 A load of 1½-inch plank is 400 square feet.
 A load of 2-inch plank is 300 square feet.
 A load of 2½-inch plank is 240 square feet.
 A load of 3-inch plank is 200 square feet.
 A load of 3½-inch plank is 170 square feet.
 A load of 4-inch plank is 150 square feet.
 A load of bricks is 500.
 A load of plain tiles is 1000.
 A load of lime is 32 bushels.
 A load of sand is 36 bushels.

Population of the United States.

AT EACH CENSUS FROM 1790 TO 1890.

Given in thousands.

States and Territories.	1810.	1830.	1860.	1870.	1880.	1890.
Ala.....	.....	309	964	996	1,262	1,513
Arizona.....	.....	.....	.....	9	40	59
Ark.....	.....	30	435	484	802	1,128
Cal.....	.....	.....	379	560	864	1,208
Col.....	.....	.....	34	39	194	419
Conn.....	261	297	460	537	622	746
Dakota.....	.....	.....	4	14	135	.....
Del.....	72	76	112	125	146	168
D. of Col.	24	39	75	131	177	230
Fla.....	.....	34	140	187	269	391
Ga.....	252	516	1,057	1,184	1,542	1,837
Idaho.....	.....	.....	.....	14	32	84
Ill.....	12	157	1,711	2,539	3,077	3,826
Ind.....	24	343	1,350	1,680	1,978	2,192
Iowa.....	.....	.....	674	1,194	1,624	1,911
Kansas.....	.....	.....	107	364	996	1,427
Ky.....	406	687	1,155	1,321	1,648	1,858
La.....	76	215	708	726	939	1,118
Maine.....	228	399	628	626	648	661
Md.....	380	447	687	780	934	1,042
Mass.....	472	610	1,231	1,457	1,783	2,238
Mich.....	4	31	749	1,184	1,636	2,093
Minn.....	.....	.....	172	439	780	1,301
Miss.....	40	136	791	827	1,131	1,289
Mo.....	20	140	1,182	1,721	2,168	2,679
Montana.....	.....	.....	.....	20	39	132
Neb.....	.....	.....	28	122	452	1,058
Nevada.....	.....	.....	6	42	62	45
N. H.....	214	269	326	318	346	376
N. J.....	245	320	672	906	1,131	1,444
N. M.....	.....	.....	93	91	119	153
N. Y.....	959	1,918	3,880	4,382	5,082	5,997
N. C.....	555	737	992	1,071	1,399	1,617
N. Dak.....	.....	.....	.....	.....	.....	182
Ohio.....	230	937	2,339	2,665	3,198	3,672
Okl.....	.....	.....	.....	.....	.....	61
Oregon.....	.....	.....	52	90	174	313
Penn.....	810	1,348	2,906	3,521	4,282	5,258
R. I.....	76	97	174	217	276	345
S. C.....	415	581	703	705	995	1,151
S. Dak.....	.....	.....	.....	.....	.....	328
Tenn.....	261	681	1,109	1,258	1,542	1,767
Texas.....	.....	.....	604	818	1,591	2,235
Utah.....	.....	.....	40	86	143	207
Vt.....	217	280	315	330	332	332
Va.....	974	1,211	1,596	1,225	1,512	1,655
Wash.....	.....	.....	11	23	75	349
W. Va.....	.....	.....	.....	442	618	762
Wis.....	.....	.....	775	1,054	1,315	1,686
Wyo.....	.....	.....	.....	9	20	60
Total.	7,239	12,866	31,443	38,558	50,155	62,622

The population of Alaska in 1890 was 30,329; of the Indian Territory, 179,321. Total population of the United States in 1890, 62,831,900.

Cotton Spinning in the South.

YEAR.	Spindles.	Bales of cotton used.
1860	217,297	50,520
1870	416,883	94,084
1880	669,754	233,000
1890	1,712,930	573,000
1896	2,770,000	915,000

Manufactures of Nations Compared.—(Mulhall.)

Millions of dollars.

	MANUFACTURE OF			Val. of all man'f per inhab't.
	Textile.	Hardware.	Leather.	
Great Britain.....	\$917	\$682	\$283	\$106
France.....	552	226	216	72
Germany.....	518	504	317	62
Russia.....	365	72	274	19
Austria.....	269	91	192	38
Italy.....	178	19	77	29
Spain.....	91	24	67	34
Sweden, Norway.....	38	34	38	43
Holland.....	38	5	24	53
Belgium.....	82	91	29	91
Switzerland.....	58	9	14	67
Other nations.....	53	14	82	29
Europe.....	3,158	1,771	1,613	48
United States.....	773	1,101	509	134
Colonies.....	34	24	38	82
Total.....	3,965	2,896	2,160	58

Draft of Horses.

At 8 hours per day, $2\frac{1}{2}$ miles per hour, and tractive force of 150 lbs.

On level hard road,	3 tons	On a canal,	60 to 90 tons
On inferior and hilly roads,	1 ton	Lifting over a pulley,	110 "
On rails,	16 tons	Carrying on his back,	300 lbs

Labor one horse is able to perform at different rates of speed on canals, railroads and turnpikes. (Drawing force, $83\frac{1}{3}$ pounds.) (Waring.)

Speed per hour, miles.	Duration of day's work, hours.	Useful on canal, tons.	Effect for one day on railroad, tons.	Drawn one mile on turnpike, tons.
$2\frac{1}{2}$	$11\frac{1}{2}$	520	115	14
3	8	243	92	12
$3\frac{1}{2}$	6	154	82	10
4	$4\frac{1}{2}$	102	72	9
5	2 9-10	52	57	7.3
6	2	30	48	6
7	$1\frac{1}{2}$	19	41	5
8	$1\frac{1}{8}$	12.8	36	4.5
9	9-10	9	32	4
10	$\frac{3}{4}$	6.5	28.8	3.6

Number of Nails and Tacks Per Pound.

Nails.				Tacks.			
		Size.	No. per lb.			Length.	No. per lb.
6 penny	fence	2 inch	80 nails	1	oz.....	$\frac{1}{3}$ inch.....	16,000
8	"	$2\frac{1}{2}$	50	$1\frac{1}{4}$	".....	$\frac{2}{3}$ -16	10,666
10	"	3	34	2	".....	$\frac{1}{4}$ "	8,000
12	"	$3\frac{1}{4}$	39	$2\frac{1}{2}$	".....	5-16	6,400
3	"	fine	$1\frac{1}{3}$	3	".....	$\frac{3}{8}$ "	5,333
3	"	.....	$1\frac{1}{4}$	4	".....	$\frac{7}{8}$ -16	4,000
4	"	.....	$1\frac{1}{2}$	6	".....	9-16	2,666
5	"	.....	$1\frac{3}{4}$	8	".....	$\frac{5}{8}$ "	2,000
6	"	.....	2	10	".....	11-16	1,600
7	"	.....	$2\frac{1}{4}$	12	".....	$\frac{3}{4}$ "	1,333
8	"	.....	$2\frac{1}{2}$	14	".....	13-16	1,143
9	"	.....	$2\frac{3}{4}$	16	".....	$\frac{7}{8}$ "	1,000
10	"	.....	3	18	".....	15-16	888
12	"	.....	$3\frac{1}{4}$	20	".....	1	800
16	"	.....	$3\frac{1}{2}$	22	".....	1 1-16	727
20	"	.....	4	24	".....	$1\frac{1}{8}$ "	666
30	"	.....	$4\frac{1}{4}$				
40	"	.....	5				
50	"	.....	$5\frac{1}{2}$				

Scientific Progress During 1897.

Various discoveries were made in the development and application of the famous X-rays. Various new rays have been discovered. The rays, new and old, are as follows:

1. Cathode rays, caused by passage of electricity through a vacuum.
2. Lenard rays are cathode rays passed through an aluminum screen. These will photograph through certain non-transparent substances.

3. X-rays: The wonderful rays which enable the experimenter to look through such substances as wood, flesh, etc. A picture three by six feet was successfully made in New York showing the entire body of an adult, X-ray style.

4. Bequerel rays: Resembling X-rays but less powerful, and can be refracted and polarized; a connecting link between light and the X-ray.

5. The light of the common glowworm has been found to possess in a slight degree the X-ray properties.

6. The light of phosphorus will penetrate black paper.

Among the important scientific discoveries of the year were: A process of photography in colors; a process, not yet commercially developed, of producing electricity from carbon without heat; development of overhead photography by kites; the photo-micrograph, by which objects are magnified and photographed; the microphonograph, which repeats and magnifies sounds; development of rapid printing telegraphy; Marconi's invention of telegraphy without wires (Tesla is perfecting a similar invention); discovery of carbide of titanium, harder than diamond. The five hardest substances are in this order: Carbide of titanium, diamond, carborundum, ruby, sapphire. Prof Koch discovered a new tuberculin claimed to cause no abscesses, when used in treatment of consumption.

Sporting Records, 1897.

International Tennis.

The leading American players, Wrenn and Larned, won 13 victories, and three for Eaves and Nisbit, the visitors from England.

MATCHES.

	Won.	Lost.	P. Cent.
* Larned.....	9	2	.818
* Wrenn.....	6	3	.666
Nisbit.....	5	5	.500
Eaves.....	3	6	.333
Mahoney.....	0	7	0

* American players.

The intercollegiate single tennis championship was won by S. G. Thomson of Princeton. Harvard won the club championship, October 5.

Golf.

The amateur golf championship was won by H. J. Whigham at Chicago, Sept. 18; W. R. Betts second. The open championship was won by Joseph Lloyd; W. Anderson, second.

The woman's amateur championship cup in golf was won by Miss Beatrix Holt at Manchester. Score:

Out: 6, 5, 6, 5, 6, 4, 6, 7—51.

In: 10, 4, 8, 6, 5, 6, 6, 6, 7—57.

The great event in British golf was the nearly perfect score by William Auchterlonie:

Out: 4, 5, 4, 4, 3, 5, 4, 3, 4—36.

In: 4, 2, 4, 4, 4, 4, 5, 4—35.

At the annual championship races, held by the International Skating Union, at Montreal, during the winter of 1897, J. A. McCulloch, of Winnipeg, Man., won the amateur, and John Nilssen, a Scandinavian, the professional championship of the world.

Oxford defeated Cambridge in the annual eight-oar English varsity race in April.

Archery.

The Eastern Archery Association held a series of contests at Washington, D. C., closing Oct. 7. The contests among the bowmen were all won by L. W. Maxson. Ladies' series were won by Miss Cooke of Washington.

How to Get a Government Position.

Since the extension of civil service rules to cover many new and desirable offices, increasing interest is manifest in the conditions of obtaining a position. Uncle Sam is a good employer. Eight hours constitutes a day's work, and a thirty days' annual vacation, with pay, allows time for recreation. Positions are permanent for competent persons and influence is not needed to secure or retain competitive positions. Faithfulness and ability earn speedy promotion, and employes beginning with small salaries may become chiefs of divisions. The city of Washington is considered a very desirable place of residence, with unusual educational and social advantages. Examinations are not extremely difficult in themselves, but competition is keen in most departments, and candidates should come well prepared to pass a high mark.

Persons entering the service usually receive appointments to the medium and lower grade positions, with salaries from \$400 to \$1800. Below are given figures of actual appointments and results of examinations in one to three positions in which appointments or applications were most numerous.

RESULTS OF EXAMINATIONS.

SERVICE AND POSITION	MALE.			FEMALE.			SALARIES.	
	Examined.	Passed.	Appointed.	Examined.	Passed.	Appointed.	Minimum.	Maximum.
<i>Departmental Service:</i>								
Clerk-copyist (a).....	319	183	28	101	71	2	\$600	\$900
Typewriter.....	107	77	5	81	40	3	600	1,000
Stenographer.....	110	39	*35	66	15	*2	600	1,200
Assistant Examiner, Patent-office...	151	46	12	.....	.....	.....	1,200	1,200
Bookkeeper(a).....	175	85	2	10	2	.....	840	1,000
Special pension examiner.....	91	52	33	.....	.....	.....	900	1,300
Meat inspector and asst. meat insp..	108	39	34	.....	.....	.....	1,200	1,400
Tagger.....	433	309	53	.....	.....	.....	720	720
Stock examiner.....	588	395	18	.....	.....	.....	900	900
Railway mail clerk(b).....	4,974	3,048	613	.....	.....	.....	800	800
<i>Indian Service:</i>								
Superintend't and principal teach'r.	75	48	1	5	2	.....	720	1,500
Teacher.....	123	75	18	209	111	23	500	1,200
<i>Government Printing Service:</i>								
Compositor.....	628	436	140	14	7	3	‡3.20	‡3.20
Bookbinder.....	95	62	8	.....	.....	.....	‡3.20	‡3.20
Skilled laborer.....	150	115	.....	440	356	.....	‡1.25	548
<i>Postoffice Service:</i>								
Clerk.....	7,421	5,080	2,138	1,850	1,435	131	500	1,000
Carrier.....	16,506	7,828	2,754	.....	.....	.....	600	1,000
<i>Customhouse Service:</i>								
Clerk.....	848	488	87	.....	.....	.....	500	900
Day inspector.....	1,278	718	130	.....	.....	.....	500	900
Assistant weigher and messenger...	288	165	17	.....	.....	.....	480	800
Night inspector and watchman.....	648	485	28	.....	.....	.....	400	800
Opener and packer.....	138	73	4	.....	.....	.....	400	720
Inspectress.....	.....	.....	.....	77	45	1	400	800

(a) Appointment is usually made at \$900. (b) Appointments are made at \$800 but places paying \$1,800 are reached by promotion. * Appointed from typewriting and stenography registers combined. ‡ Per Day.

This includes only those positions to which appointments were numerous in a single year. Many other competitive positions are vacant from time to

time. Those who wish to know the salaries attached to any specific position not given above, or in our directory of government, elsewhere, should inquire of the government department to which the position belongs. For positions where technical knowledge is required, special examinations are held.

The following table gives an idea of the various positions open to competition. The number, over 84,000, is to be increased to 145,000 by the addition of postmasters of small or fourth-class post offices.

Classified by Salary.

Divisions by which positions are classified.	Class A: Less than \$720.	Class B: \$720 but less than \$840.	Class C: \$840 but less than \$900.	Class D: \$900 but less than \$1,000.	Class E: \$1,000 but less than \$1,200.	Class 1: \$1,200 but less than \$1,400.	Class 2: \$1,400 but less than \$1,600.	Class 3: \$1,600 but less than \$1,800.	Class 4: \$1,800 but less than \$2,000.	Class 5: \$2,000 but less than \$2,500.	Class 6: \$2,500 or more.	Tot'l by classes.
Departmental.....	9,225	5,650	1,047	4,565	7,342	4,537	2,644	1,269	1,370	856	380	48,068
Post office.....	8,429	2,530	.....	5,621	8,180	531	268	57	29	60	19	25,724
Gov't printing.....	1,109	66	37	23	1,251	256	29	7	24	12	2	2,816
Custom-house.....	212	321	578	129	1,087	661	898	185	102	181	109	4,464
Internal revenue..	770	49	4	267	319	785	862	45	45	22	....	3,168
Total executive civil service, U. S..	19,745	8,617	1,666	10,605	18,179	6,770	4,701	1,563	1,570	1,131	510	84,240

Of course only a small proportion of these are appointed in any one year. In 1896, for instance, there were 5,084 civil service appointments, of which 442 were in the various departments, as state treasury, agriculture, etc; 665 were in the railway mail service, 88 in the Indian service, 177 in government printing offices, 459 in customhouse service, 115 in revenue service and 3,148 in post office service.

APPLICATIONS AND EXAMINATIONS.

Blanks for application to positions in the departments and on the railway, mail, Indian school, printing service, can be obtained by requests addressed to U. S. Civil Service Commission, Washington, D. C. The blank for the customs, postal or internal revenue service must be requested in writing by the persons desiring examination of the customs, postal, or internal revenue board of examiners at the office where service is sought. Make out the blank and return it to the office from which it came. Full instructions are found with the blanks.

The examinations include as nearly as possible a test of fitness for the duties to be performed.

Apart from the special duties of the position, the questions are mostly based on the common school branches.

Examinations for departments and printing service are held twice a year in the principal cities of each state, usually in spring or fall. For customhouse service, first Tuesdays in April and October at all classified customhouses. For revenue service, third Saturdays in March and September at all internal revenue offices. For post office service, first Tuesday in February and March at largest post offices in the various states, and first Saturdays in June and December at all other free delivery post offices.

Take up the loose ends.

APPOINTMENTS.

The result of the examination is made known to each candidate in due time. A mark of 70 per cent is required to pass. When a vacancy occurs, it is filled by one of the three standing highest on the list of those who passed in the examination for that position. Persons who pass and get no appointment, or who fail to pass at all, may try again the following year.

Statement of Expenditures of the United States.

In millions and tenths. (Table O, Report of Secretary of Treasury).

YEAR.	War.	Navy.	Indians	Pensi'ns	Mis.	Net ordi- nary ex- pend't's	Premi- ums.	Interest	Public debt.	Gross expendi- tures.
1800	\$3	\$3			\$1	\$7		\$3	\$1	\$12
1825	4	3	\$1	\$1	3	12		4	8	24
1837	14	7	4	3	10	37				37
1850	10	8	2	2	16	37		4	4	45
1860	17	12	3	1	28	60		3	14	77
1861	23	12	3	1	23	63		4	19	85
1862	389	43	2	1	21	456		13	96	566
1863	603	63	3	1	23	694		25	181	900
1864	690	86	3	5	28	811		54	431	1,296
1865	1,031	123	5	16	43	1,218	\$2	77	610	1,906
1866	283	43	3	16	41	386		113	620	1,139
1867	95	31	5	21	51	203	11	144	736	1,093
1868	123	26	4	24	53	230	7	140	693	1,070
1869	79	20	7	29	57	191	2	131	262	585
1870	58	22	3	28	53	164	16	129	393	703
1871	36	19	7	34	61	158	9	126	400	692
1872	35	21	7	29	61	153	7	117	405	683
1873	46	24	8	29	73	181	5	105	234	524
1874	42	31	7	29	85	194	1	107	422	725
1875	41	22	8	30	71	172		103	407	682
1876	38	19	6	28	74	165		100	449	714
1877	37	15	5	28	59	144		97	324	565
1878	32	17	5	27	58	135		103	354	591
1879	40	15	5	35	64	162		105	699	966
1880	38	14	6	57	55	169	3	96	433	700
1881	40	16	7	50	64	177	1	83	165	426
1882	44	15	10	61	57	187		71	272	530
1883	49	15	7	66	69	206		59	590	856
1884	39	17	7	55	71	190		55	261	505
1885	43	16	7	56	88	207		51	212	472
1886	34	14	6	63	74	192		51	205	448
1887	39	15	6	75	85	220		48	272	540
1888	39	17	6	80	73	215	8	45	250	518
1889	44	21	7	88	81	242	17	41	319	618
1890	45	22	7	107	81	262	20	36	312	630
1891	49	26	9	124	110	318	10	38	365	731
1892	47	29	11	135	100	320		23	339	684
1893	50	30	13	159	104	356		27	390	773
1894	55	32	10	141	102	340		28	331	699
1895	52	29	10	141	93	325		31	354	711
1896	51	27	12	139	87	317		35	396	748
1897	49	35	13	141	90	328			38	
Total										
1791-1896	\$5,031.6	\$1,354.6	\$321.4	\$2,089.8	\$2,854.6	\$11,651.9	\$125.7	\$2,862.9	\$13,617.5	\$28,222.1

TO REDUCE OLD BONES.—Get all the bones you can find. Put into a wide wooden trough 500 or 1,000 pounds at a time; take pure sulphuric acid (60 deg. quality), at the rate of two carboys to a ton of bones. Mix half and half with warm water, and apply directly over the bones. Sprinkle over the top with dirt; allow them to remain a day or two, and, uncovering, the bones will fall to pieces at the slightest touch.

Statement of Receipts of United States.

In millions. (Table U, Report of Secretary of the Treasury).

YEAR.	Bal. in Treas.	Customs.	Internal Revenue	Public Lands.	Mis.	Net ordi- nary re- ceipts.	Interest and premiums	Loan and Treas. notes.	Gross receipts.
1800	\$2	\$9	\$1		\$1	\$11		\$2	\$12
1825	2	20		\$1		22		5	27
1837	47	11		7	7	25		3	28
1850	33	40		2	2	44		4	48
1860	33	53		2	1	56		21	77
1861	33	40			1	41		42	83
1862	31	49			3	52		530	582
1863	47	69	37		5	112	\$1	777	889
1864	37	102	110		31	243	21	1,129	1,893
1865	134	85	209	1	27	322	12	1,472	1,806
1866	34	179	309	1	31	520	38	713	1,271
1867	161	176	266	1	19	463	28	640	1,131
1868	198	164	191	1	19	376	29	625	1,031
1869	159	180	158	4	15	357	14	239	610
1870	184	195	185	3	13	396	15	285	697
1871	178	206	143	2	23	374	9	269	652
1872	138	216	131	3	15	365	9	305	679
1873	135	188	114	9	17	322	12	215	549
1874	159	163	102	2	33	300	5	439	744
1875	179	157	110	1	15	284	4	388	676
1876	173	148	117	1	24	290	4	397	692
1877	150	131	119	1	30	281	4	349	630
1878	215	130	111	1	16	257		405	662
1879	287	137	114	1	21	272		793	1,067
1880	387	187	124	1	22	334	2	212	545
1881	232	198	135	2	25	361		114	475
1882	281	220	146	5	32	404		121	524
1883	275	215	145	8	31	398		556	954
1884	374	195	122	10	22	348		207	555
1885	425	181	113	6	24	324		245	569
1886	522	193	117	6	21	336		116	453
1887	527	217	119	9	26	371		154	526
1888	513	219	124	11	25	379		285	664
1889	659	224	131	8	24	387		245	632
1890	673	230	143	6	24	403		245	643
1891	692	220	146	4	23	393		373	766
1892	726	177	154	3	20	355		381	736
1893	779	203	161	3	18	386		347	733
1894	738	132	147	2	17	298	8	418	724
1895	764	152	143	1	17	313	11	396	721
1896	774	160	147	1	19	327	11	483	821
1897	871	176	146	1	7	22	345	11	
Total									
1791-1896		\$7,575	\$4,864	\$290	\$820	\$13,551	\$237	\$15,284	\$29,071

FIREPROOF WASH FOR ROOFS.—Slake lime in a close box to prevent the escape of steam, and when slaked, pass it through a sieve. To every six quarts of this lime add one quart of rock salt and one gallon of water. After this boil and skim clean. To every five gallons of this, add by slow degrees three quarters of a pound of potash and four quarts of fine sand. Coloring matter may be added if desired. Apply with a paint or whitewash brush. This wash looks as well as paint and is almost as durable as slate. It will stop small leaks in a roof, prevent the moss from growing over it, and render it incombustible from sparks falling on it. When applied to brick work, it renders the brick utterly impervious to rain; it endures as long as paint, and the expense is a mere trifle.

Good luck grows not on bushes.

Per Capita Statistics of the United States.

Compiled from the U. S. Statistical Abstract and other official resources.

	1896	1894	1893	1892	1890	1885	1880	1878	1873	1867
Pop. in millions....	71	68	67	65	63	56	50	48	42	36
Money in U. S.	\$32.86	\$35.44	\$34.75	\$36.21	\$34.24	\$32.37	\$24.04	\$16.62	\$18.60 ^a	\$20.11
Money in circula'n	21.10	24.33	23.87	24.44	22.82	23.02	19.41	15.32	18.04	18.28
U. S. debt, net....	13.41	13.17	12.55	12.86	14.22	24.50	38.27	42.01	50.52	69.26
U. S. interest.....	.49	.37	.34	.35	.47	.84	1.59	1.99	2.35	3.84
U. S. receipts.....	4.59	4.36	5.77	5.43	6.44	5.77	6.65	5.41	8.01	13.55
U. S. expenses.....	4.94	6.48	6.87	5.28	4.75	4.64	5.34	4.98	6.97	9.87
Pensions.....	1.96	2.07	2.37	2.16	1.71	1.17	1.14	.56	.70	.51
Gold coinage.....		1.17	.85	.53	.33	.49	1.24	1.05	1.37	.66
Gold production...	.74	.53	.54	.50	.52	.57	.72	1.08	.86	1.43
Silver coinage...		.13	.13	.19	.63	.51	.55	.60	.10	.03
Silver production...	1.06	1.14	1.16	1.15	1.13	.90	.78	.95	.86	.37
Gold & silver imp.		1.24	.67	1.07	.54	.77	1.85	.63	.52	.61
Gold & silver exp.		1.87	2.24	1.27	.83	.75	.34	.71	2.03	1.68
M'd'se imports....	10.66	9.32	12.64	12.44	12.35	10.32	12.51	9.21	15.91	10.44
M'd'se exports.....	12.11	12.73	12.44	15.53	13.50	12.94	16.43	14.30	12.12	7.73
Duties collected...	2.20	1.90	2.97	2.66	3.62	3.17	3.64	2.67	4.44	4.65
P. O. revenue.....	1.16	1.10	1.14	1.08	.97	.76	.66	.62	.55	.42
Consumption of										
Cotton, raw, lbs.	18.46	15.91	17.07	24.03	18.50	15.16	18.94	13.71	15.19	8.48
Wheat, bu.....	4.78	3.41	4.85	5.91	6.09	6.77	5.35	5.72	4.81	3.92
Corn, bu.....	14.73	22.76	23.66	30.33	32.09	31.04	28.88	26.37	22.86	23.52
Sugar, lbs.....		66.0	63.4	63.5	52.8	51.8	42.9	34.3	39.8	21.1
Coffee, lbs.....	8.04	8.01	8.24	9.61	7.83	9.60	8.78	6.24	6.87	5.01
Tea, lbs.....	1.31	1.34	1.32	1.37	1.33	1.18	1.39	1.33	1.53	1.09
Spirits, gals....	1.00	1.33	1.51	1.50	1.40	1.26	1.27	1.09	1.63	
Malt liquors, gals	15.16	15.18	16.08	15.10	13.67	10.62	8.26	6.68	7.21	5.31
Wines, gal.....	.26	.31	.48	.44	.46	.39	.56	.47	.45	
Raw wool, lbs...		5.08	7.05	6.72	6.03	6.69	6.11	5.28	5.67	5.45
Sav. bank deposits	\$26.88	\$25.53	\$26.63	\$26.11	\$24.35	\$19.55	\$16.33	\$18.48	\$19.01	\$9.33

^a Exclusive of \$110,000,000 in gold and of \$6,150,000 in silver not included in the Statistical Abstract's tables for 1873 and for several succeeding years, but estimated by Director of the Mint. The addition of these sums accounts for the discrepancy between the mint figure (\$21.36) of per capita circulation in 1873 and the \$18.04 here given.

For the year 1896 the per capita national bank deposits were \$37.14; state bank deposits, \$14.41; private loan and trust deposits, \$11.30; total bank deposits, \$93.69.

The Annual Appropriations Made by Congress for Each Fiscal Year, 1889-97.

In millions of dollars.

Fiscal year.....	1897	1896	1895	1894	1893	1892	1891	1890	1889
No. of Congress.....	54th	53d	53d	52d	52d	51st	51st	50th	50th
Session of Congress.....	1st	3d	1st&2	2d	1st	2d	1st	2d	1st
Deficiencies.....	\$13.9	\$8.5	\$9.5	\$21.2	\$14.9	\$38.5	\$34.1	\$14.2	\$21.2
Legislation, etc.....	21.5	21.9	21.3	21.9	21.9	22.0	21.1	20.9	20.9
Sundry civil.....	29.8	35.1	25.9	27.6	26.9	35.5	29.8	25.5	26.3
Army.....	23.3	23.3	23.6	24.2	24.3	24.6	24.2	24.3	24.5
Navy.....	30.6	29.4	25.4	22.1	23.5	31.5	23.1	21.7	19.9
Indians.....	7.4	8.8	10.8	7.9	7.7	16.3	7.3	8.1	5.4
Rivers and harbors.....	15.9	11.5	20.0	14.2	22.1	3.0	25.1		22.4
Forts.....	7.4	1.9	2.4	2.2	2.7	3.8	4.2	1.2	4.0
Military Academy.....	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.9	0.3
Pensions.....	141.3	141.4	151.6	166.5	146.7	135.2	98.5	81.8	81.8
Consular.....	1.6	1.6	1.6	1.6	1.6	1.7	1.7	2.0	1.4
Agricultural department.	3.3	3.3	3.2	3.3	3.2	3.0	1.8	1.7	1.7
D. C.....	5.9	5.7	5.5	5.4	5.3	5.6	5.8	5.7	5.1
Miscellaneous.....	4	0.3	0.6	0.5	3.4	2.7	10.6	10.2	10.1
Total.....	302.7	293.1	301.8	319.0	304.6	323.8	287.7	218.2	245.0

This is exclusive of postoffice department, of which the receipts do not quite meet its expenditures.

First come, first served.

Where the Money Comes From to Pay These Appropriations.

Receipts and their Sources. In millions of dollars.

Duties on imports.	1897	1896	1895	1894	1893	1892	1891	1890	1889
A—Articles of food and live animals.....	\$50	\$37	\$24	\$10	\$13	\$10	\$46	\$66	\$67
B—Articles in crude condition.....	3	4	5	6	14	14	14	14	15
C—Partly man'f'd for use in the arts.....	11	15	19	20	29	22	25	21	22
D—Manufactured.....	55	55	53	50	83	77	74	73	69
E—Art works, tobacco, luxuries.....	52	44	47	42	59	50	57	51	46
Other customs.....	5	5	4	4	5	4	4	5	5
Total duties.....	176	160	152	132	203	177	220	230	224
Internal reve nue, taxes on—									
Spirits.....	77	75	75	80	89	86	80	77	69
Tobacco.....		31	30	29	32	31	33	32	30
Beer, etc.....	32	33	31	31	32	29	28	25	23
Oleo.....	1	1	1	1	1	1	1	1	1
Total.....	147	140	137	141	154	147	142	134	123
Postal service.....	83	82	77	75	76	71	66	61	56
Miscellaneous.....	24	20	18	19	21	24	27	31	32
Aggregate.....	430	402	384	367	454	419	455	456	435

Naval Strength of United States and Foreign Powers.

During recent years great advances have been made in naval construction in the United States, but the work must be actively pushed forward for some time to come, before this country can claim rank as a leading sea power. The following table shows the present strength of the navies of seven great nations:

CLASS.	England.			France.			Russia.			Italy.			Germ'ny			U. S.			Spain.		
	Built.	Building	Total.	Built.	Building	Total.	Built.	Building	Total.	Built.	Building	Total.	Built.	Building	Total.	Built.	Building	Total.	Built.	Building	Total.
Battle ships:																					
First class.....	22	12	34	10	8	18	5	6	11	8	2	10	4	2	6	3	6	9	1	...	1
Second class.....	12	...	12	11	1	12	5	2	7	2	...	2	7	...	7	2	...	2	...	...	...
Third class.....	11	...	11	2	...	2	...	...	...	5	...	5	3	...	3	...	...	2	...	...	2
Total.....	45	12	57	23	9	32	10	8	18	15	2	17	14	2	16	5	6	11	3	...	3
Coast-defense ships	13	...	13	16	...	16	10	4	14	...	...	...	17	2	19	6	1	7	...	...	...
Cruisers:																					
Armored.....	16	...	16	9	1	10	9	1	10	1	5	6	...	1	1	2	...	2	3	4	1
First class.....	11	10	21	2	4	6	2	...	...	...	...	...	1	...	1	3	...	3	1	...	7
Second and third classes.....	51	24	75	10	9	19	3	1	4	16	1	17	3	5	8	13	...	13	7	...	2
Lookout ships or gunboats.....	19	...	19	12	...	12	...	...	...	...	...	...	11	1	12	9	9	18	22	...	27
Torpedo gunboats.	34	...	34	12	3	15	8	...	8	15	2	17	9	1	10	...	...	...	3	4	7
Torpedo-boat de-																					
stroyers.....	...	...	98	...	...	3	...	...	1	...	...	1	...	...	11	...	...	1	...	2	3
Torpedo boats.....	...	...	160	...	...	241	...	...	161	...	...	176	...	...	145	3	15	18	19	4	22

TO MEND RUBBER BOOTS.—Dissolve small pieces of rubber, not vulcanized, in warm spirits of turpentine, to the consistency of thin molasses. Rub the patch and the boot thoroughly with sharp sandpaper. Smear both with liquid rubber five times, letting them dry each time. At the sixth application, apply the patch with strong pressure to the boot, and it is mended. Liquid rubber is obtainable at city drug stores.

Nae fules like auld fules.

The New Vessels.

About one-third of the ships in the United States navy were authorized during the administration of President Cleveland, 1893-7, and among the 28 ships thus included are many of the best and most modern warships. Following is the list of these 28 vessels:

NAME.	Displacement.	Speed.	Main battery.	Contract date of completion.
	<i>Tons.</i>	<i>Knots.</i>		
Hearsarge.....	11,520	16	4 13 in. B. L. R.; 48 in. B. L. R.; 14 5 in. R. F. G.	Jan. 2, 1899
Kentucky.....	11,520	16	do.	do.
Illinois.....	11,520	16	4 13 in. B. L. R.; 14 6 in. R. F. G.	Sept. 26, 1899
Alabama.....	11,520	16	do.	Sept. 24, 1899
Wisconsin.....	11,520	16	do.	Sept. 19, 1899
Total (5).....	57,600			
Gunboats.				
Annapolis.....	1,000	12	6 4 in. R. F. G.	Feb. 20, 1897
Vicksburg.....	1,000	12	do.	Feb. 15, 1897
Newport.....	1,000	12	do.	do.
Princeton.....	1,000	12	do.	Feb. 20, 1897
Wheeling.....	1,000	12	do.	Feb. 26, 1897
Marietta.....	1,000	12	do.	do.
Total (6).....	6,000			
18 Torpedo boats, Nos. 3 to 18.....	2,098	20 to 30	44 Torpedo tubes.....	1896-98
Submarine torpedo b't	168	8	2 Torpedo tubes.....	1896

From the above table it appears that twenty-eight vessels have been authorized since March 4, 1893, their displacement, armament, etc., being distributed as follows:

CLASS.	No.	Total displacement.	Aggregate main batteries.
		<i>Tons.</i>	
Battleships.....	28	57,600	20 13 in. B. L. R. 8 8 in. B. L. R. 42 6 in. R. F. G. 28 5 in. R. F. G.
Light-draught gunboats.....	6	6,000	36 4 in. R. F. G.
Torpedo boats.....	16	2,098	44 torpedo tubes.
Submarine torpedo boat.....	1	168	2 torpedo tubes.
Grand total.....	28	65,866	

Abbreviations: B. L. R., breech loading rifles; R. F. G., rapid fire guns.

Admission to Naval Academy.

Each member of the national house of representatives may nominate a naval cadet to the academy at Annapolis, Md., and one is appointed for the District of Columbia and ten at large by the president. Candidates must reside in the district for which they are nominated. Candidates for cadet engineers are chosen by the secretary of the navy without regard to number or residence, and from these candidates 25 are selected on competitive examination.

Applications for admission to the academy must be between 15 and 20 years of age, physically sound, well formed and of robust constitution. Cadets are given a six-year course of study, two of which are given at sea, and must serve two years after graduation, unless discharged. From the list of graduates appointments are made in order of merit, to the lower grades of the Line and Engineer corps of the navy and the Marine corps. Graduates not receiving appointments are given a certificate of graduation and one year's sea pay.

Admission to West Point Academy.

Each national congressman may nominate one cadet, and ten are appointed by the president. There are often numerous applications for a single appointment and competitive examinations are commonly held. The representative may nominate a legally qualified second candidate, to be designated the alternate. The alternate will receive from the war department a letter of appointment, and will be examined with regular appointee, and if duly qualified will be admitted to the academy in event of failure of principal to pass prescribed examinations. Appointees must be between 17 and 22 years, free from any infirmity which may render them unfit for military service, and able to pass a careful examination in reading, writing, orthography, arithmetic, grammar, geography and history of the United States. Many applicants are rejected because of physical defects. Candidates must be residents of the district from which appointment is made.

The academy was founded in 1802. It is located near the Hudson river at West Point, N. Y. A through course of four years is given. Academic duties begin September 1 and continue until June 1. Examinations are held in each January and June, and cadets found proficient in studies and correct in conduct are given the particular standing in their class to which their merits entitle them, while those pupils deficient in either conduct or studies are discharged. Cadets are allowed but one leave of absence during the four years' course, and this is granted at the expiration of the first two years.

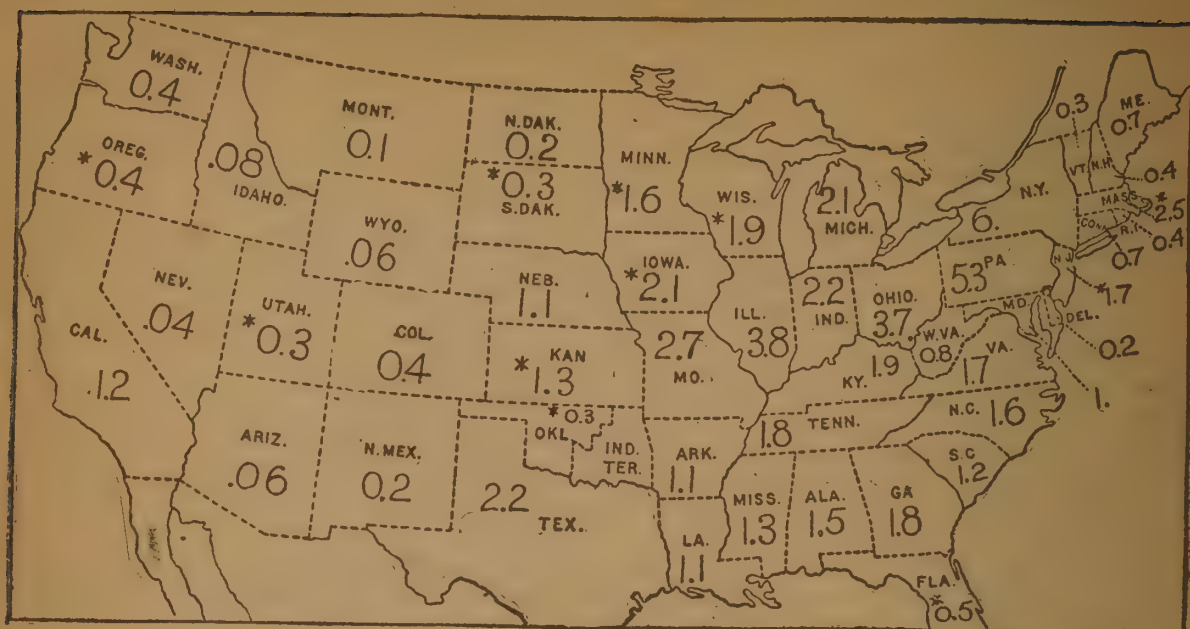
Cadets are paid \$550 per year. Graduates must remain at least four years longer in government service, unless sooner discharged. They are appointed to duty in the military department for which they seem best adapted. Young men who wish to try for admission to West Point should apply to the congressman from their district.

States Which Tax Inheritance.

For particulars concerning the subject of inheritance taxes, see Pages 187-195.

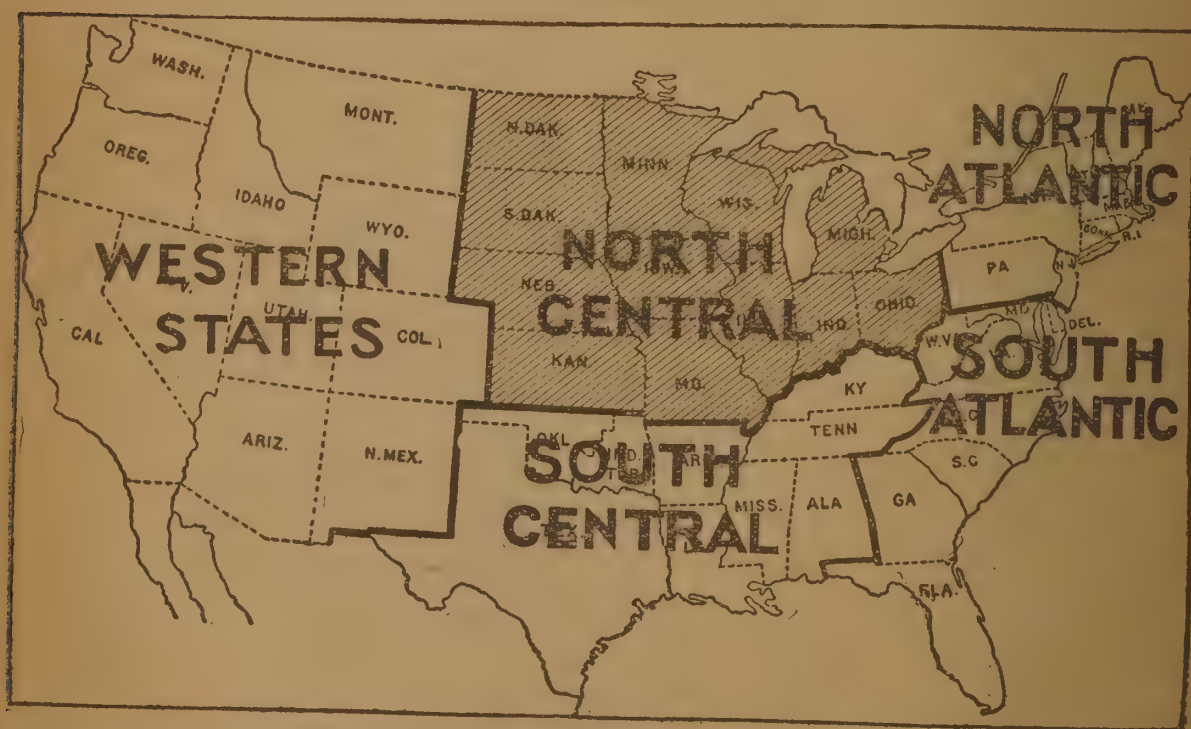
STATE OR COUNTRY.	On direct or col- lateral heirs.		On other heirs.		STATE OR COUNTRY.	On direct or col- lateral heirs.		On other heirs.	
	Tax. Per cent.	Est't Exmp	Tax. Per cent.	Est. Exm		Tax. Per cent.	Est. Exm.	Tax. Per cent.	Est. Exm.
		Dols.		Dols.			Dols.		Dols.
Cal.....				5 500	Vt.....	5	2,000	5	2,000
Conn.....	½ of 1 to 5	10,000		5 10,000	Va.....			1-10 of 1	1,000
Del.....				5	W. Va.....	2½	1,000		
Ill.....	1 to 2	20,000	3 to 6	500	Canada...				
Iowa.....	5	1,000			Ont.....	2½ to 5	100,000	10	10,000
La.....			10 foreign		N. S.....	2½ to 5	25,000	10	5,000
Maine....	2½	500			Quebec...	1 to 38	10,000		
Md.....	2½	500	2½	500	England..	1 to 8	500	18	5,000
Mass.....			5	10,000	Aust'lasia.	5 to 10	5,000	10 to 20	5,000
Minn.....	1	10,000	5	5,000	France....	1¼ to 11¼		15	
Mont.....	1	7,500	5		Holland..	1 to 10		15	
N. J.....			5	500	Switzerl'd	1 to 8		10	
N. Y.....	1	10,000	5	500	Germany..	3 to 10		13	
N. C.....	¾ to 1½				Italy.....	1½ to 11½		10	
Ohio.....		200	5	200	Spain.....	1 to 9		8	
Penn.....	2	5,000	5	250	Russia....	1 to 6			
Tenn.....	5								

OLD RAZOR STROPS.—Rub a little clean tallow over the surface and then put on it the light top part of the snuff of a candle; rub it smooth, or rub the strop well with a piece of soft pewter or lead.



POPULATION BY STATES.

Expressed in millions and tenths of millions. Those marked with an asterisk (*) are results of State census of 1895. All others Federal census of 1890.

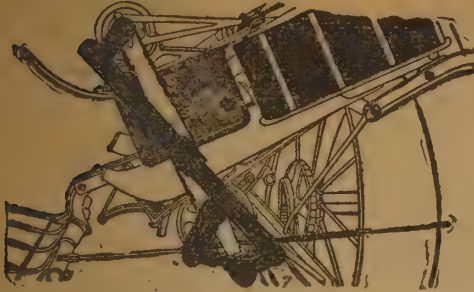


THE STATES AS GROUPED BY THE CENSUS.

This classification of the states is now almost universally followed for comparative purposes.

One barking dog sets all the street abarking.

Here is direct Lever Power instead of Cumbersome Cog Wheels.



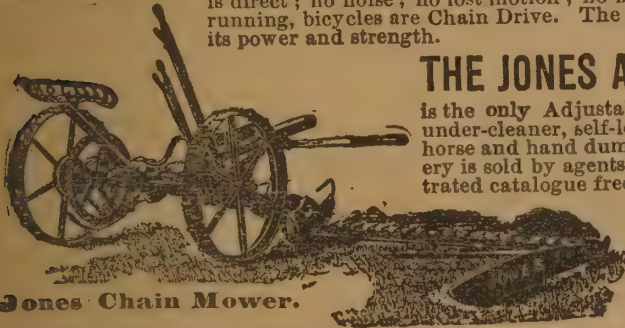
THE PLANO'S JONES LEVER BINDER

Should be seen by every Farmer.

It is the only Harvester and Binder built on Modern, Improved and Simplified principles. A model of perfection, recognized as the greatest triumph ever known in the Binder business. Direct **Lever Power** in place of cumbersome, complicated cog wheels. The most wonderful improvement ever made. It affords greatest leverage at the moment of greatest strain. With **Lever Power** motion is always uniform and steady; no sudden jerks. It makes the Binder run one horse lighter than any other Binder. The Jones Lever Binder

has the only **Sure Knotter**, composed of **Five Simple Parts**; nothing to get out of order; nothing to wear out; nothing to annoy the farmer. Only Binder with a Fly-Wheel and Friction Clutch Reel.

If you want the simplest, lightest draft and longest lived Mower in the world, use the celebrated **JONES CHAIN MOWER**. It has no nest of gearing to wear out; nothing about it to break or give way. With Chain Drive, power is direct; no noise; no lost motion; no backing up to start in the grass. As a sample of light running, bicycles are Chain Drive. The use of Chain Drive on the great Ferris Wheel indicates its power and strength.



Jones Chain Mower.



Jones Adjustable Hay Rake.

THE JONES ALL-STEEL ADJUSTABLE HAY RAKE

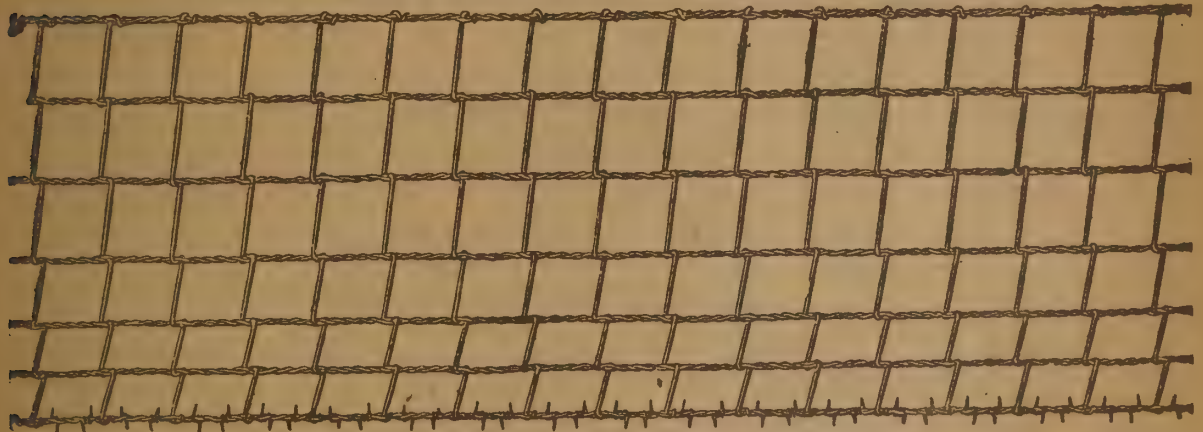
is the only Adjustable Hay Rake made; with oil tempered steel, spring under-cleaner, self-locking device, and many other patented features. Both horse and hand dump in all sizes. This popular line of Harvesting Machinery is sold by agents all over the world. Send your address for 1898 illustrated catalogue free; the most beautiful book ever issued.

THE PLANO MFG CO.,

Manufacturers,

West Pullman, Chicago, Ill.

Cabled Field and Hog Fence, With Barbs on Lower Cable.



Clidden Barbs Three Inches Apart.

In addition to our already well established lines, we have added a new fence by putting barbs on lower cable of our Field and Hog Fencing, making a most desirable and satisfactory fence to use anywhere.

REMEMBER we also manufacture Steel Web Picket Fencing for lawns, Cabled Poultry Fencing, and a full line of gates, posts, etc. Catalogue free.

DEKALB FENCE CO.,

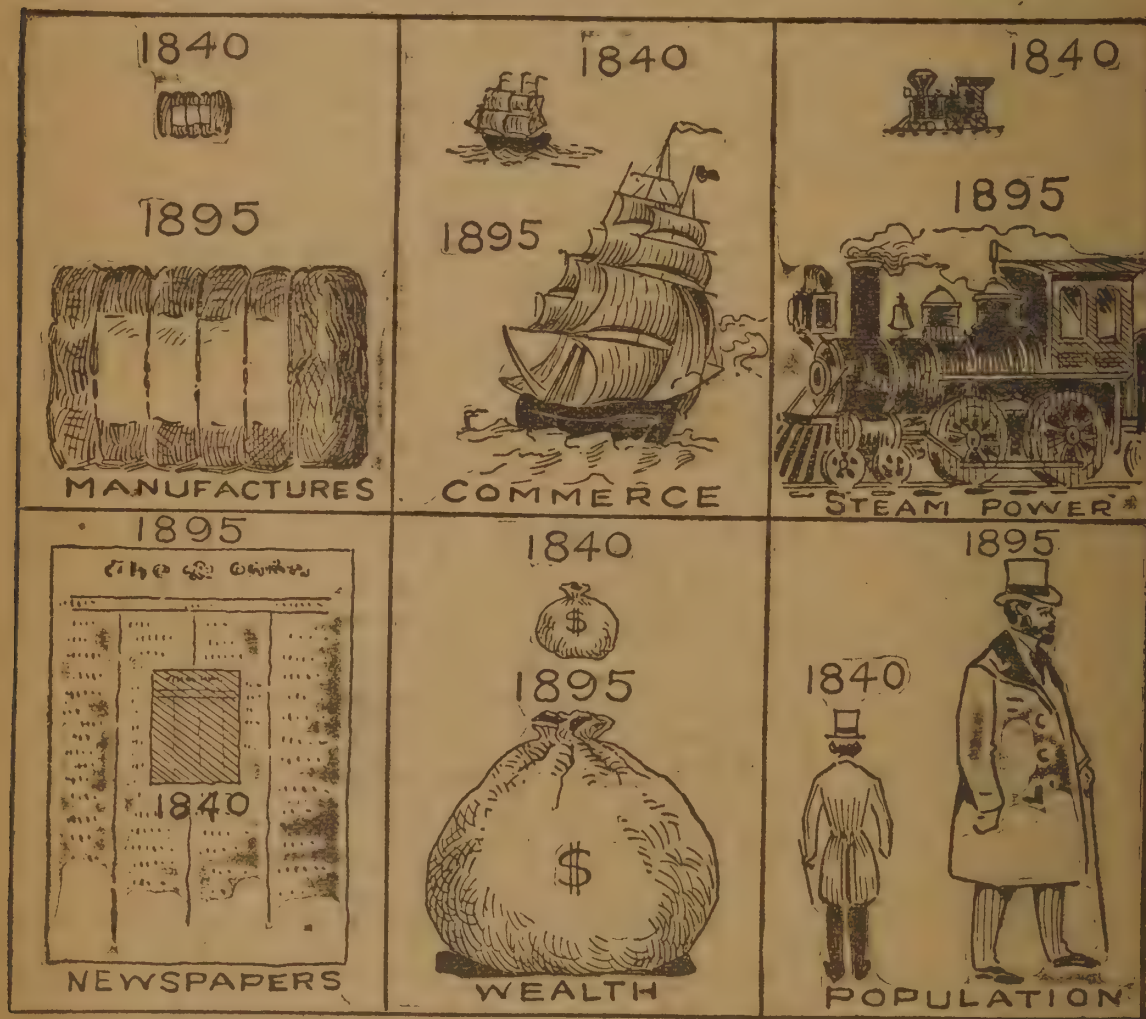
321 High Street,

DeKALB, ILL.

The Victorian Sixty Years.

To remind the American reader that great changes have taken place since June 20, 1837, when Queen Victoria ascended the throne, it is only necessary to recall the conditions sixty years ago. At that period this country numbered only about fifteen millions of people, or about one-fifth the present number, and the national center of population was in West Virginia instead of in Indiana, as at present, while all the great southwestern and Pacific region still belonged to Mexico.

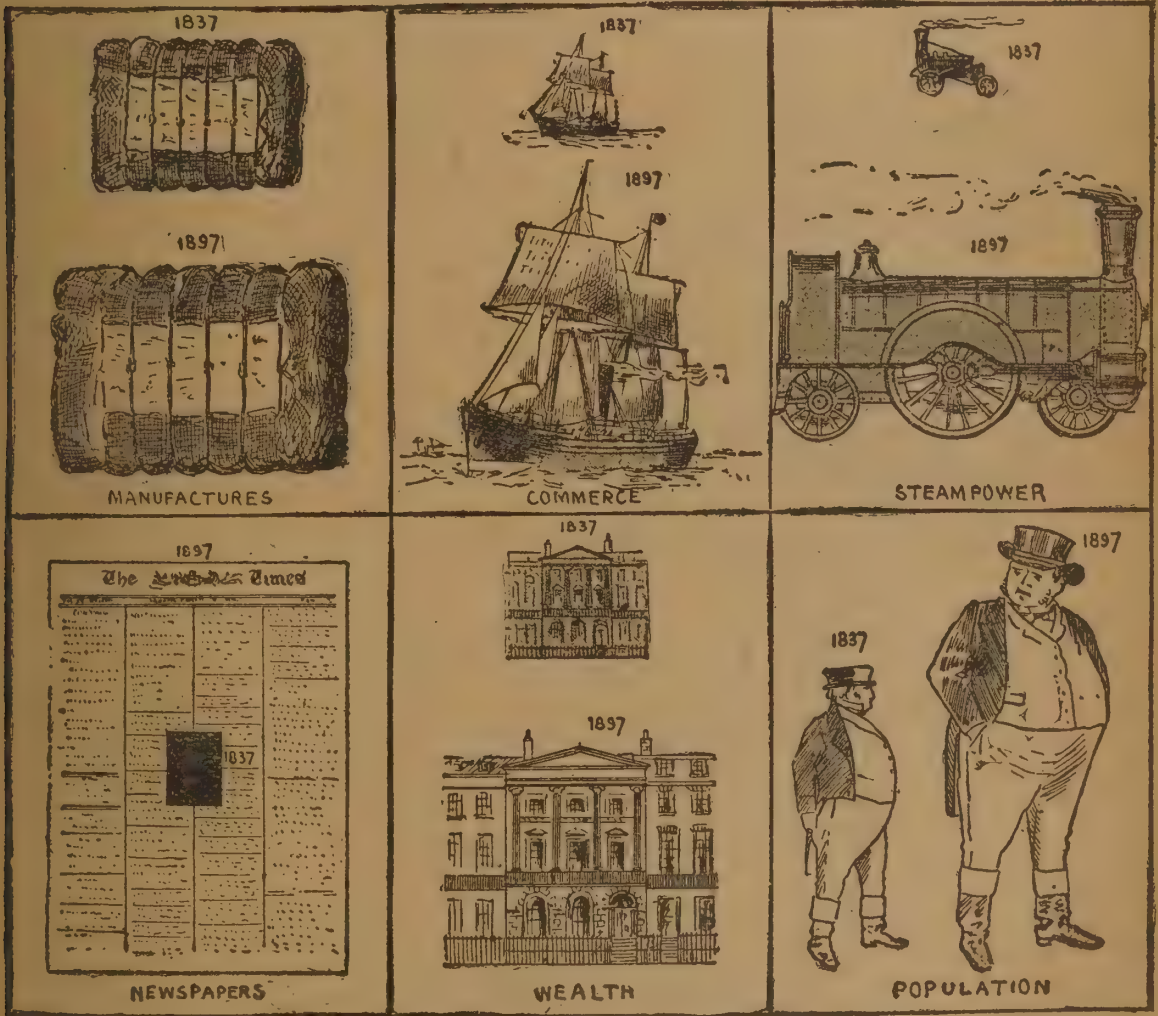
The steam railway had only begun its development here, while the sewing machine, the mower, the telegraph and the scores of electrical



GROWTH OF RESOURCES OF THE UNITED STATES, 1840-1895.

and other inventions were unknown. Anæsthetics had not yet softened the harshness of surgery, friction matches were uncommon and kerosene lights almost unheard of. Postage stamps had not been invented nor free mail delivery established. Popular education had developed but little. Negro slavery was apparently firmly fixed as an institution. There were few great fortunes, no factories, no large newspapers. Many of our present necessities were luxuries then, while wages were lower and comforts were difficult to obtain.

It may well be inferred that even in a conservative country like England, the changes of the Victorian sixty years have been numerous and important. In territory, more than a million and a half square miles have been added to the British Empire, an area nearly half the size of the United States, of which increase a million square miles are in Africa alone. The colonial population has grown from 4,000,000 to 18,000,000, not including India. Canada has 5,000,000 people in place of 1,000,000, while the population of Australia has gained from 175,000 to 4,500,000. The population of the home kingdom has very nearly doubled, the taxable property has increased four and one-half



GROWTH OF THE UNITED KINGDOM IN SIXTY YEARS.—(REVIEW OF REVIEWS.)

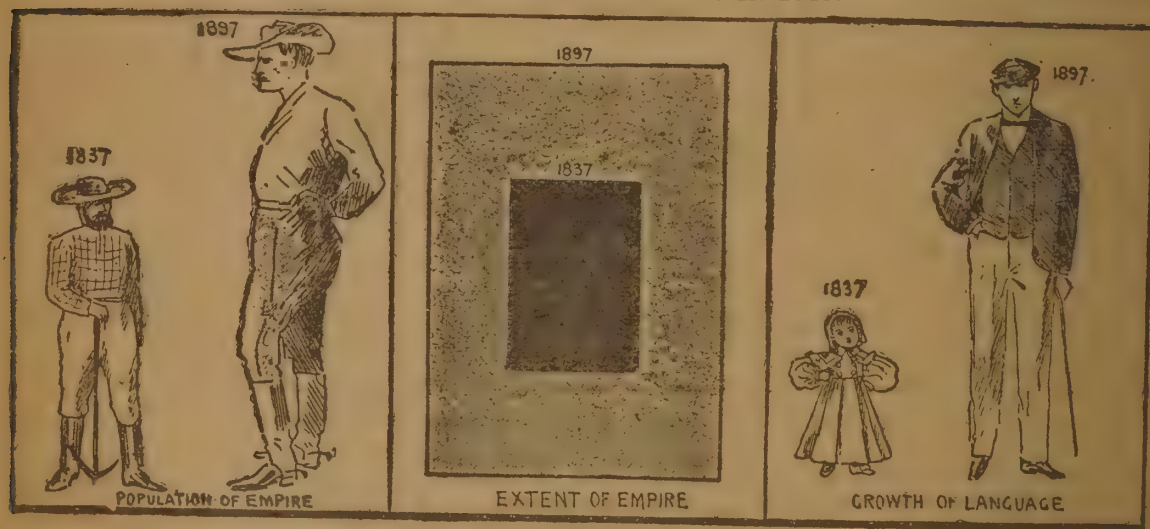
times, the consumption of cotton has nearly trebled and the foreign trade has increased 420 per cent. A familiar expression in regard to the Empire makes it the "Country upon which the sun never sets," because of the location of its dependencies in all quarters of the globe. Its total area is 11,000,000 miles, inhabited by 381,000,000 people; or with three times the area and five times the population of the United States.

Construction of iron ships began during the first Victorian year, giving a great impetus to naval progress. Fast ocean steamships have

brought England and America within six days, instead of six weeks, of one another, while cable telegraph has enabled American newspapers to bulletin news dispatches from England before they started by the clock, owing to the difference in local time. From the days of the mail coach, England has come to operate 21,000 miles of railway, employing



MAP OF THE UNITED STATES IN 1840.



DEVELOPMENT OF THE ENGLISH EMPIRE.

nearly half a million of people, while the United States operates well nigh 200,000 miles of railway. In the strictly scientific world the most epoch-making discoveries have been those of the molecular theory, the conservation of energy and the theory of evolution. The scope of electrical development is too large even for detailed mention; from the

first telegraph line constructed in 1838 to the quite recent discovery of the mysterious X-ray as an outgrowth of electrical experiments.

In the condition of the laboring man and of the average people, great gain has been made, wages have been doubled, while the cost of luxuries and of many necessities has been decreased. Voting privileges have been enlarged, libraries, museums, art galleries, parks, baths are provided. Vacations and half holidays have become the rule. There are cheap railroad tickets, low-priced books, cheap water supply and cheap light. Workingmen are protected by trades unions, while many of the laws have been changed in their favor. Popular education is general and children are protected from overwork and abuse. In England and Wales there are 30,000 day schools and 6,000,000 pupils.

Under the reign of a queen, inquiry is natural as regards the status of women. The example of the good queen has doubtless effected



BRITISH SOUTH AFRICA IN 1854 AND 1898.

much to elevate the social standard. Women in England have been granted municipal franchise and their early entrance to parliament has been prophesied, their title to hold property has been recognized, they can vote for town and county councils, but cannot even yet be elected to those offices. They are admitted to the professions, although not so readily as in America. The Victorian reign has produced great women novelists, Eliot and the Brontes; a great women poet, Mrs Barrett Browning; distinguished women political economists, Martineau and Faucett, and successful women organizers, Mrs Booth and Mrs Besant.

A few distinguished names of the Victorian period will suffice to recall the memory of the work which they have done. In the realm of abstract science we have Herschel, Young, Cavendish, Davy, Faraday, Tyndall, Kelvin, Joule, Huxley, Darwin, Spencer, Mill, Wallace,

Colden, Lyall. Among British inventors may be named Bessemer, Siemens, Armstrong, Brunel, Greathead, Baker. In historians, the age was particularly fortunate. There were Carlyle, Macauley, Green, Freeman, Froude, Kinglake, Bryce, Forster, Hallam, Palgrave, Grote, Milman, Seeley, Buckle, Lecky.

Among the most noted men of letters the poets Tennyson and Browning, Swinburne, Mathew Arnold, Rossetti came with the Victorian epoch. The novelists and essayists, Thackeray and Dickens, Charles Reade, George Eliot and the Brontes, Lytton, Kingsley and Wilkie Collins, Ruskin, De Quincy, Sydney Smith, Jeffrey, Jowett, Landor, Symonds, Trollope, John Morley, and among later names Blackmore, Stevenson, Kipling and Hardy. A few of the theologians are Newman and Pusey, Wilberforce, Martineau, Maurice, Lightfoot and Robertson. England's Victorian travelers include such men as Sir Richard Burton, Livingstone, Baker, Stanley and Layard; her statesmen, Disraeli, Gladstone, Palmerston, Bright, Salisbury. The true comparative position of the Victorian age must be left to be determined by the more comprehensive judgment of posterity. At least, the period has been one of unexampled material, social and economic advancement. The past sixty years have brought the British nation, and the whole English-speaking race as well, to a position of unexampled prestige and opportunity, to a freer, larger age; a logical, steady development toward the application of enlightened reason to all departments of living.

ADDENDA.

Page 71. John W. Griggs of New York, has been appointed Attorney-General, to succeed Gen. Jos. McKenna, who has been appointed to the supreme bench.

Page 72. Assistant Secretary of Treasury is F. A. Vanderslip, succeeding William E. Curtis.

Page 87. Director of Bureau of American Republics is Jos. P. Smith of Ohio, replacing Clinton Furbish.

Page 88. The governor of Alaska is John E. Brady, appointed to succeed James Sheakley.

Page 90. The acreage given in note is for improved land.

Page 134. Latest official estimate of population of Canada, Sept. 15, 1897, was 5,185,990.

Page 344. A vacancy in the Sixth Congressional district of Illinois was filled by H. S. Boutelle, Rep.

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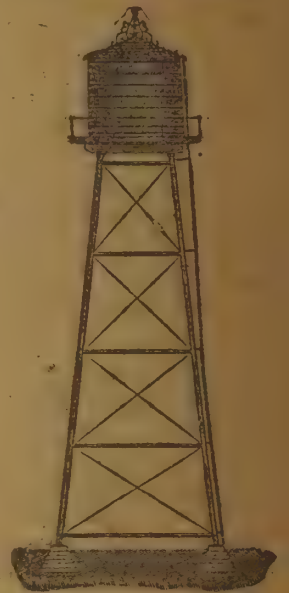


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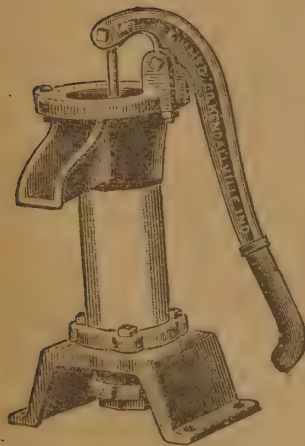
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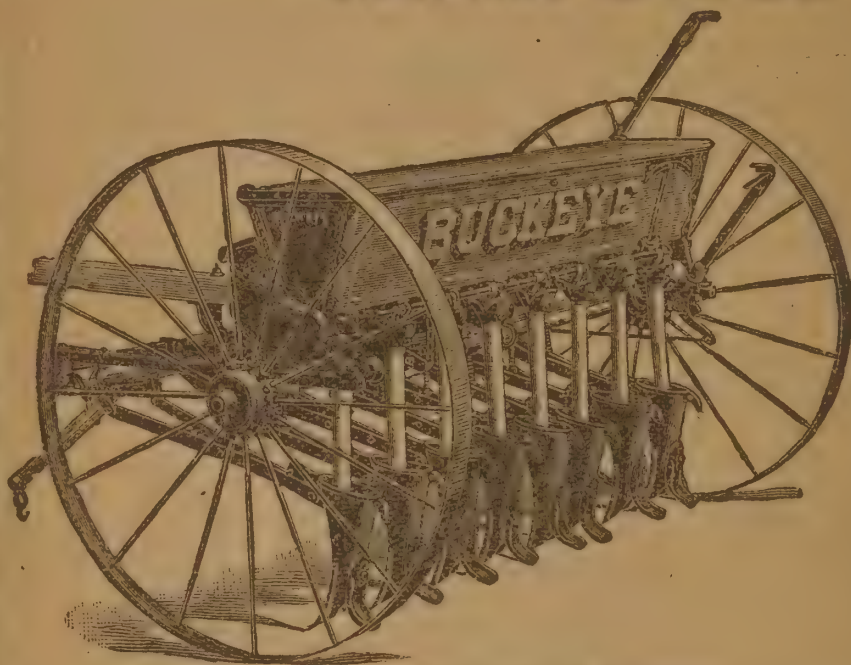


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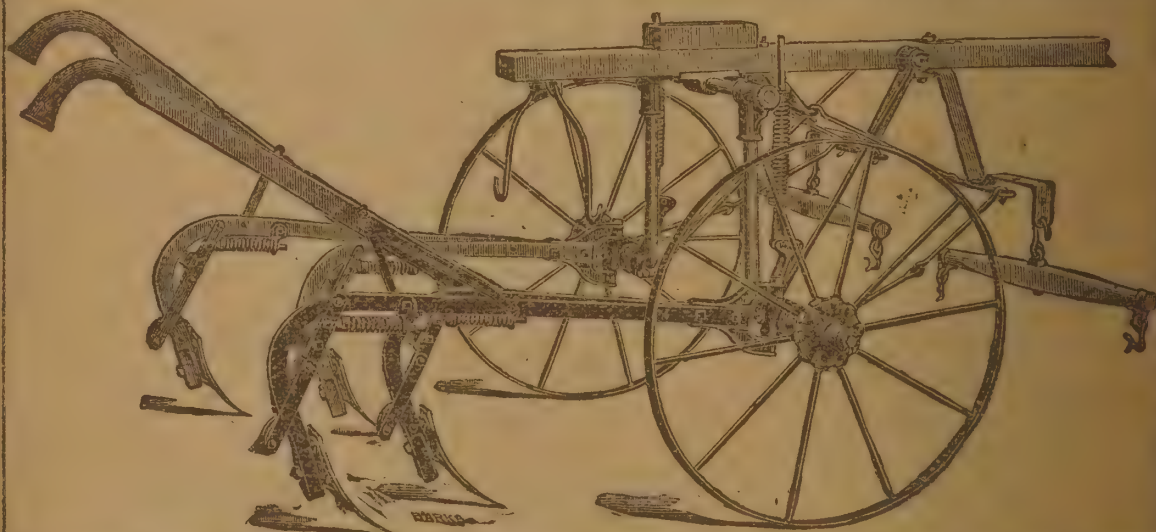
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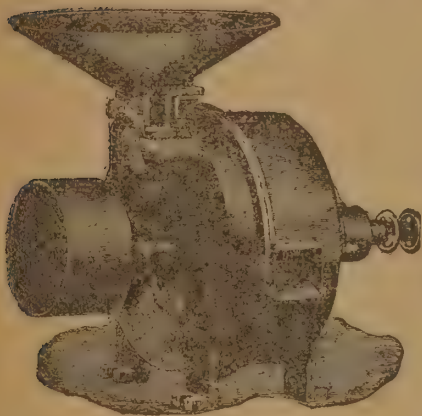
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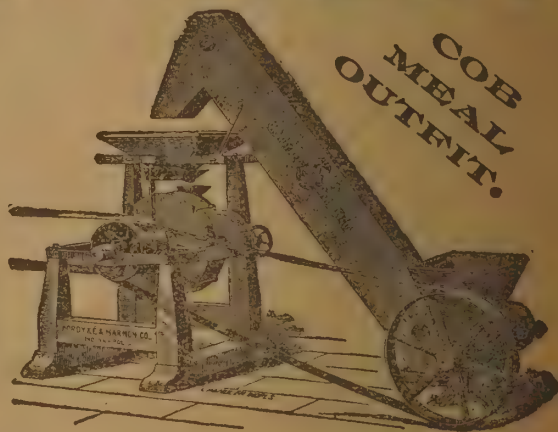
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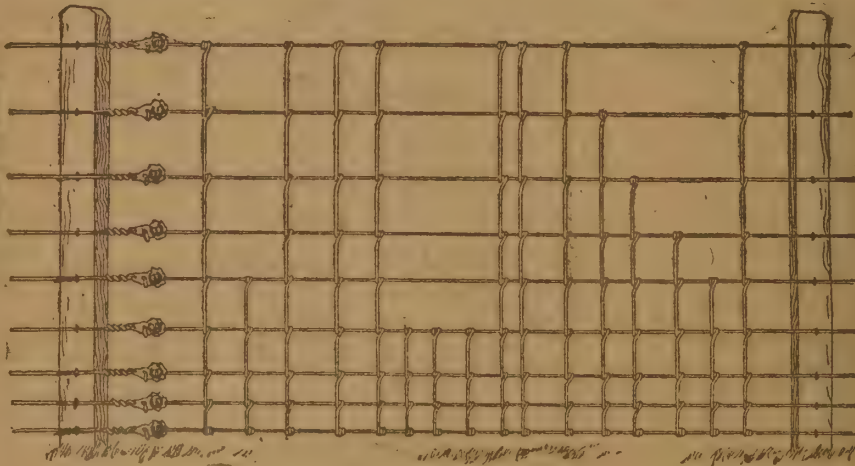
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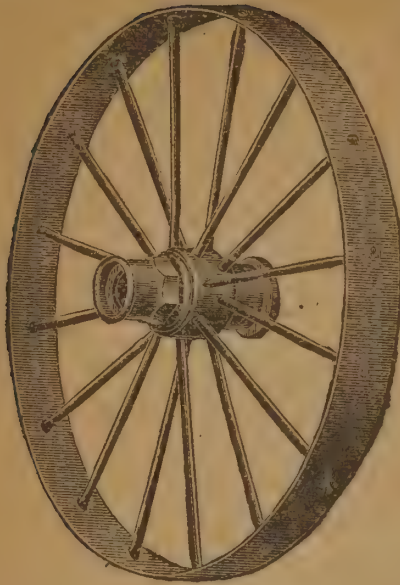
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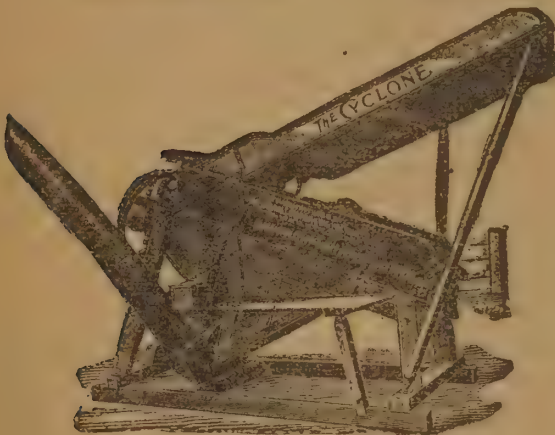
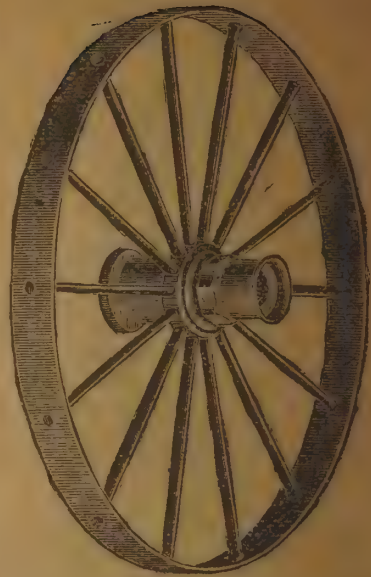
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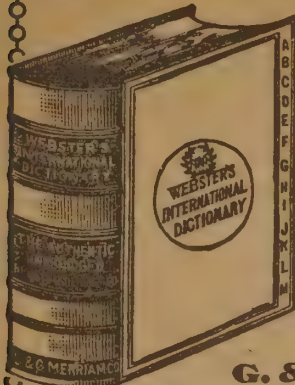
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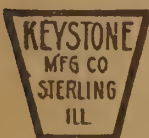
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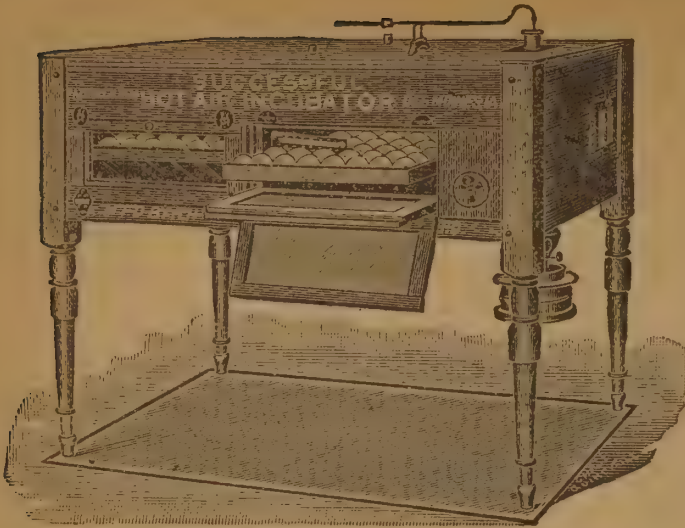
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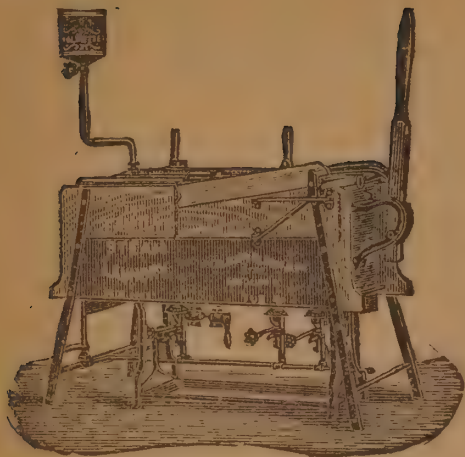
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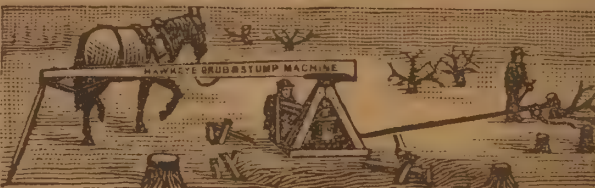
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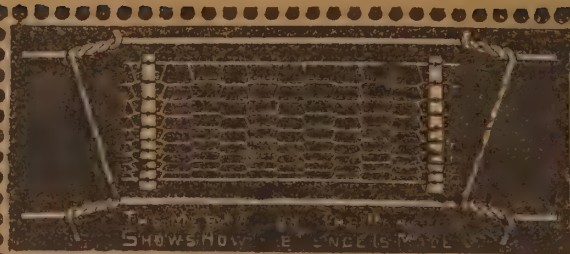
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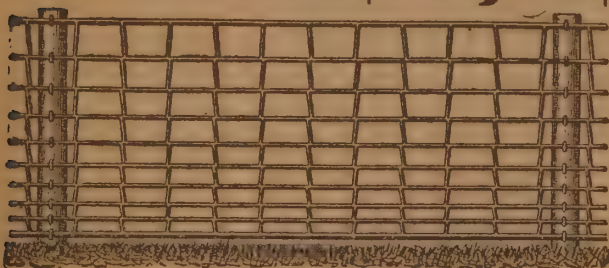
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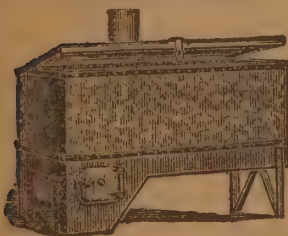
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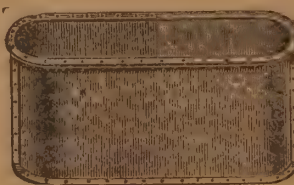
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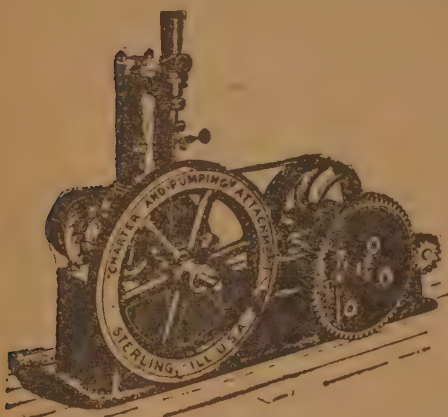
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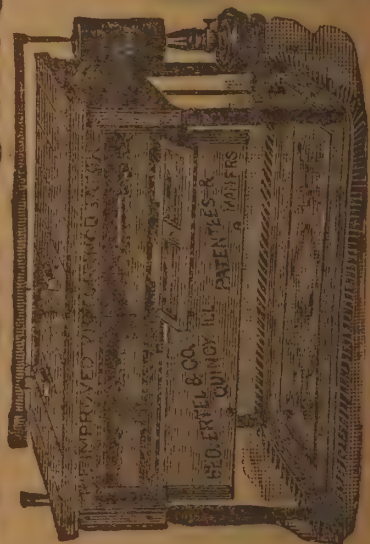
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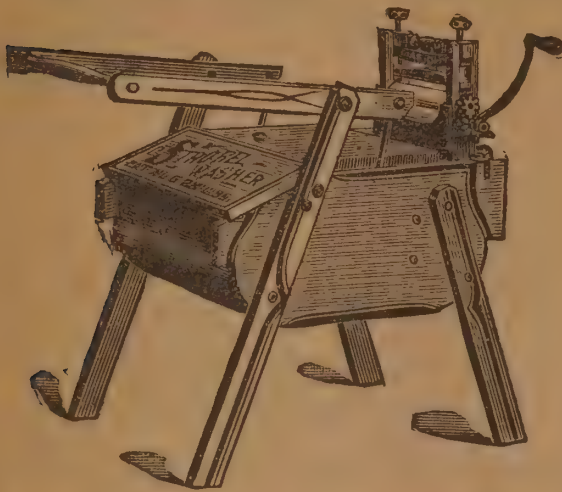
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		Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12
January	to ..	Feb. 31	Mar. 59	April 90	May 120	June 151	July 181	Aug. 212	Sept. 243	Oct. 273	Nov. 304	Dec. 334	Jan. 365
February	" ..	Mar. 28	April 59	May 89	June 120	July 150	Aug. 181	Sept. 212	Oct. 242	Nov. 273	Dec. 303	Jan. 334	Feb. 365
March	" ..	April 31	May 61	June 92	July 122	Aug. 153	Sept. 184	Oct. 214	Nov. 245	Dec. 275	Jan. 306	Feb. 337	Mar. 365
April	" ..	May 30	June 61	July 91	Aug. 122	Sept. 153	Oct. 183	Nov. 214	Dec. 244	Jan. 275	Feb. 306	Mar. 334	April 365
May	" ..	June 31	July 61	Aug. 92	Sept. 123	Oct. 153	Nov. 184	Dec. 214	Jan. 245	Feb. 276	Mar. 304	April 335	May 365
June	" ..	July 30	Aug. 61	Sept. 92	Oct. 122	Nov. 153	Dec. 183	Jan. 214	Feb. 245	Mar. 273	April 304	May 334	June 365
July	" ..	Aug. 31	Sept. 62	Oct. 92	Nov. 123	Dec. 153	Jan. 184	Feb. 215	Mar. 243	April 274	May 304	June 335	July 365
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October	" ..	Nov. 31	Dec. 61	Jan. 92	Feb. 123	Mar. 151	April 182	May 212	June 243	July 273	Aug. 304	Sept. 335	Oct. 365
November	" ..	Dec. 30	Jan. 61	Feb. 92	Mar. 120	April 151	May 181	June 212	July 242	Aug. 273	Sept. 304	Oct. 334	Nov. 365
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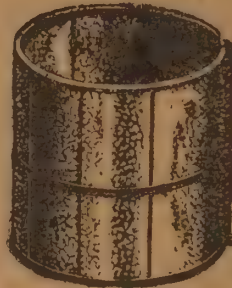
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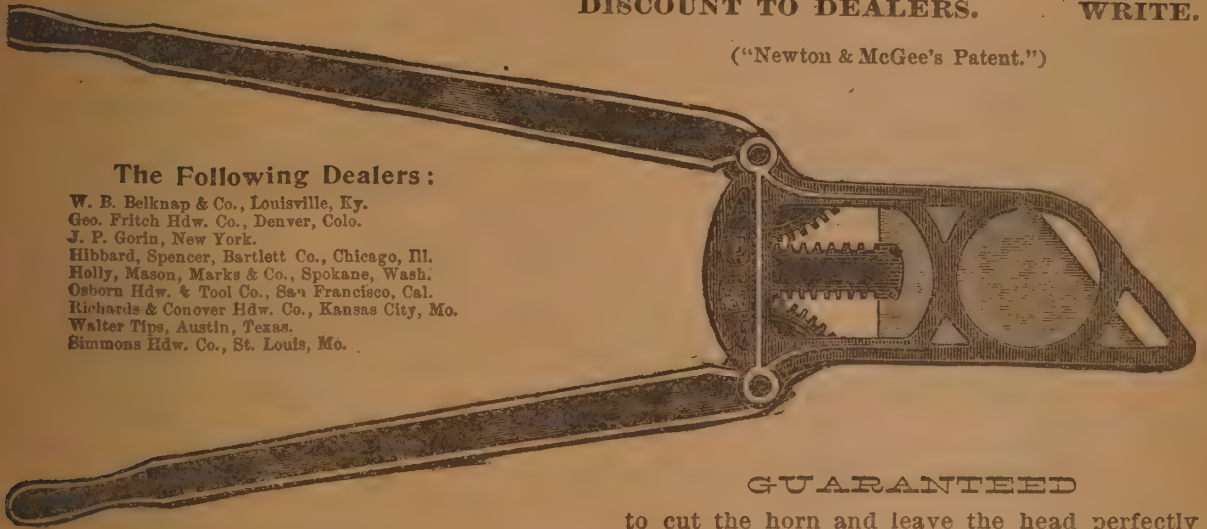
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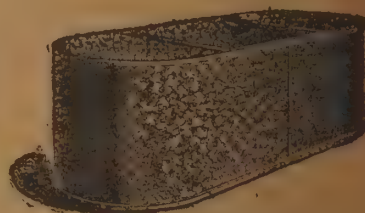
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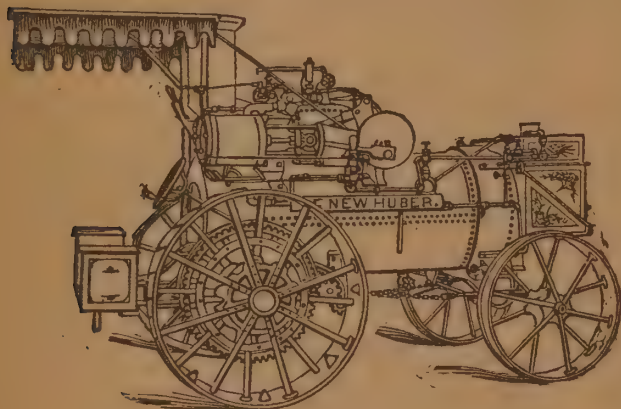


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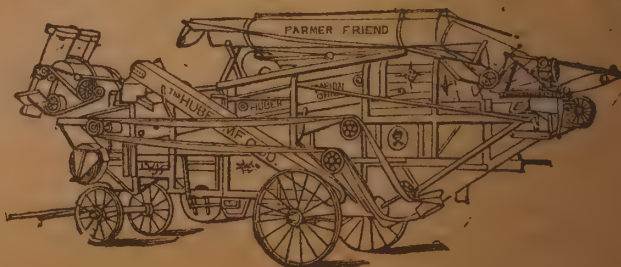
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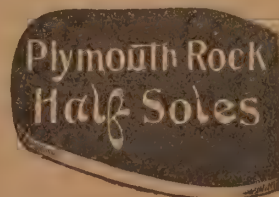
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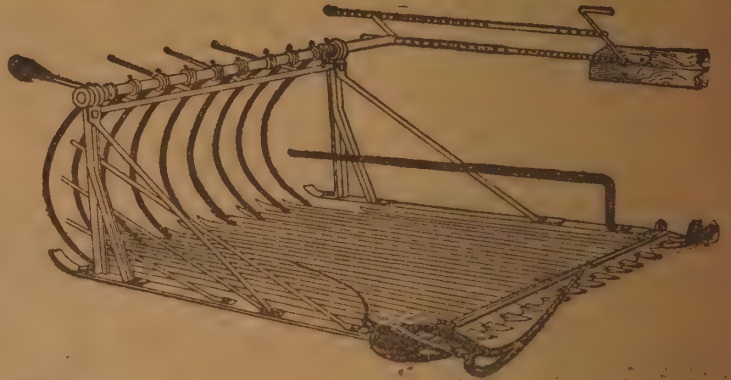


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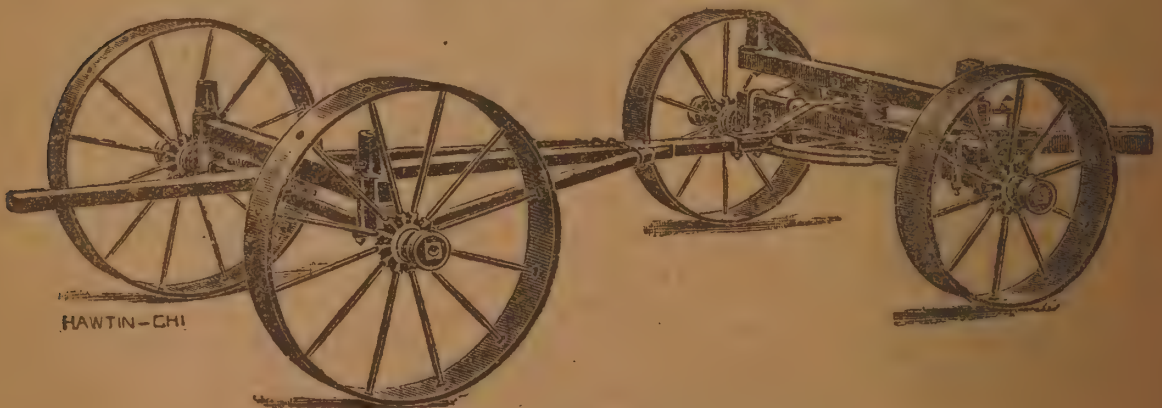
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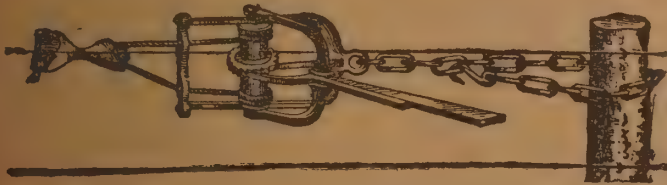
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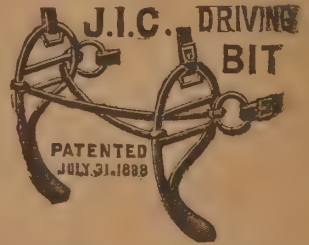
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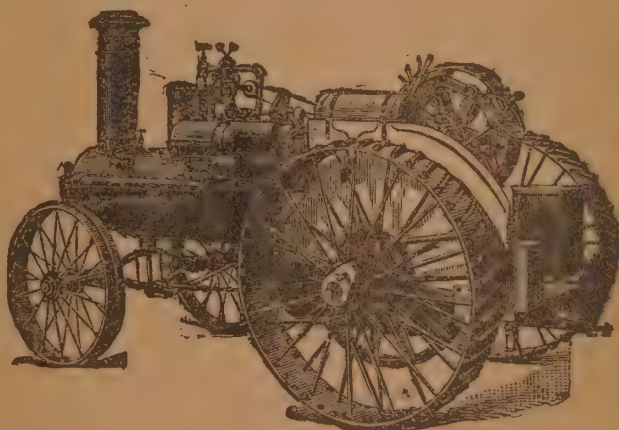
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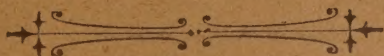
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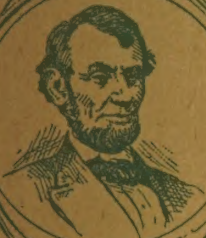
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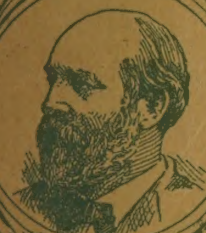
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